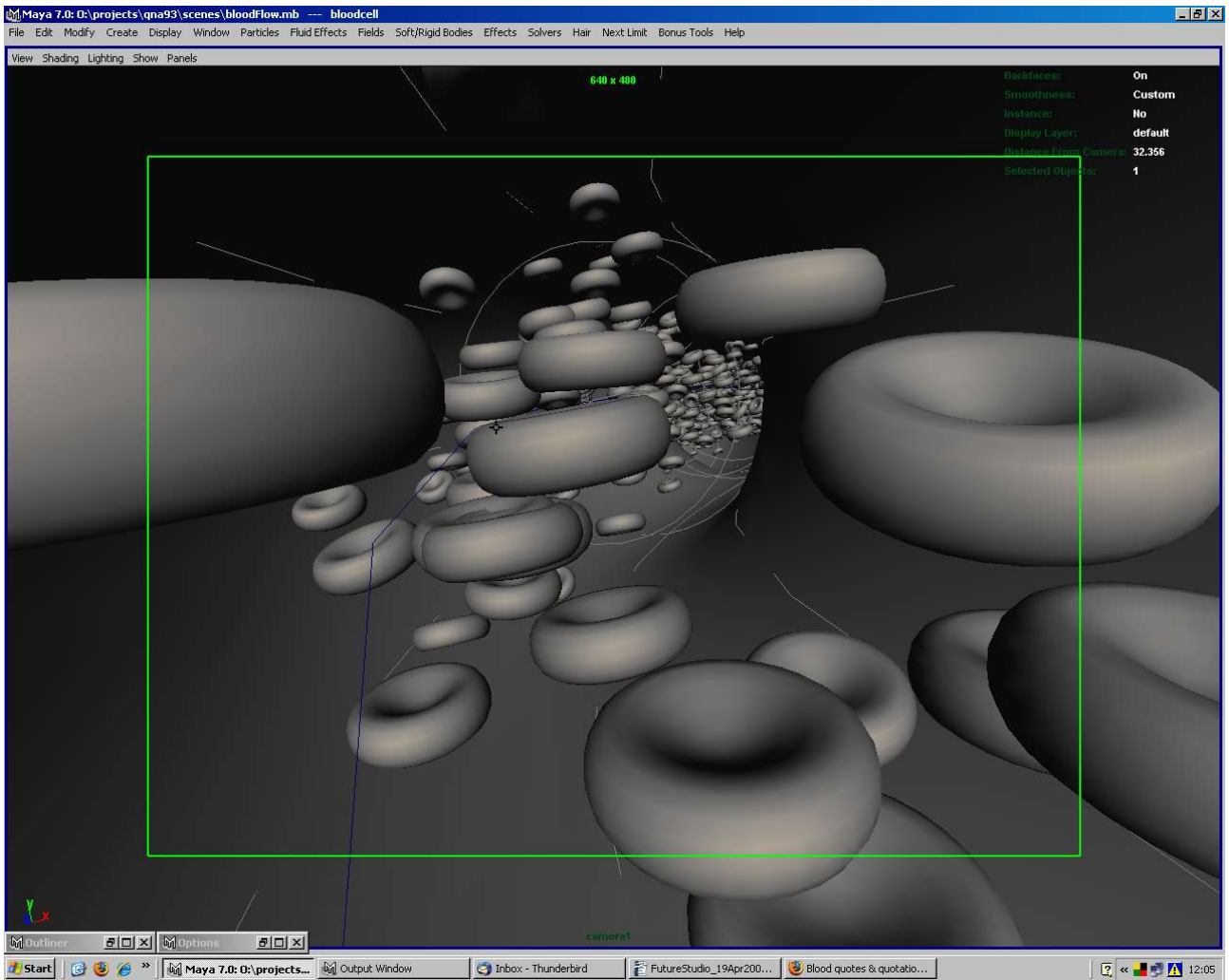


Maya QNA_93	First published in 3DWorld Magazine 93 August 2007
Question:	How can I replace particles with some geometric objects? I want to make a scene like a Saturn ring with a camera flying over. <i>AGENTS MITH, VIA THE FORUMS</i>

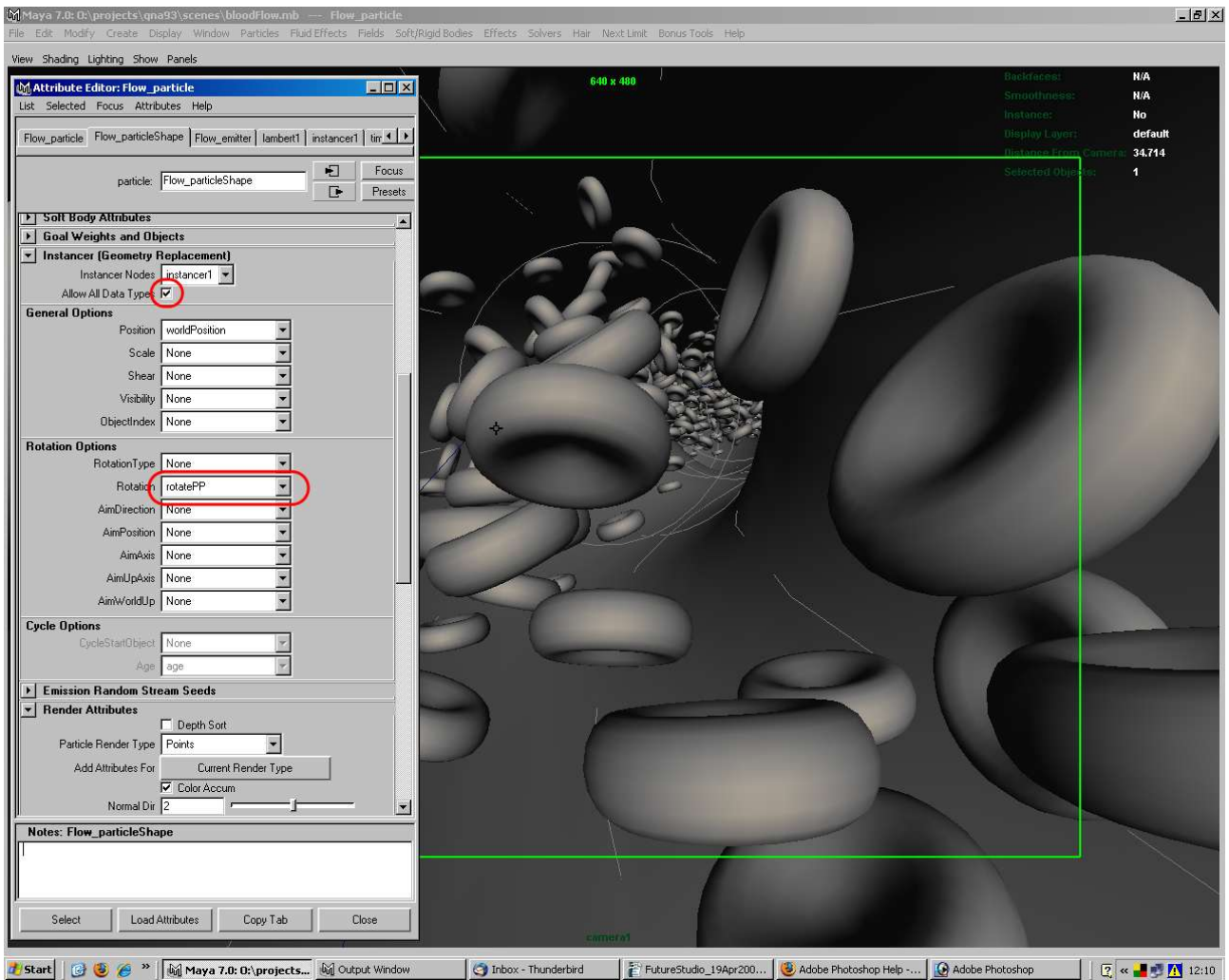
Particles: I love them, I do. You can create amazing motion, but if you want a rainstorm of frogs what do you do? This is why 3D packages have something called particle replacement, which enables you to substitute your particles with objects. It's great for things like asteroids, flocks of birds and so on, as it not only replaces the particles with objects, it also allows you to pass particle values down to your instanced geometry so you can randomise them just that little bit more. Here's a typical particle example: blood cells flowing down a vein. Open up the scene bloodflow.mb and you will see a tube that has particles travelling down it. Dots are not too convincing as blood cells, so let's replace them with a blood cell model in the scene.

Select the blood cell. Under the Dynamics menu set, select **Particles > Instancer (Replacement) > Option Box**. You should see **0: bloodCell** in the Instance Objects text window, showing that the bloodcell model is going to replace the particle Flow_particleShape. Click **Create** and re-run the animation. Hurray, you've got bloodcells – but, boo, they look unconvincing, with little or no motion whatsoever. Maya's powerful instancer can change all that.

The particle object has an attribute, rotatePP, which generates a totally different animating vector for each particle. We can use this value to effectively rotate each of our instanced bloodcells. Open the object Flow in the Outliner, and double-click on the icon by Flow_particle to open it in the Attribute Editor. Scroll down to and then pop open the **Instancer (Geometry Replacement)** panel. Tick the checkbox by **Allow All Data Types**. Now in the Rotation Options, click on **Textfield** by Rotation and select *rotatePP*. Close the window, restart the animation: now all of your particles will now spin as if flowing in a vein.



Once you have created an object instance of your particles, it immediately pops up over them in the scene, giving you instant feedback



Once you connect up the per particle attribute value into the particle's instance info, you get your results instantly in the viewport.

TIP

If you are rendering on multiple machines, make sure to create a particle cache for your scene to avoid dynamic solver differences in your frames.