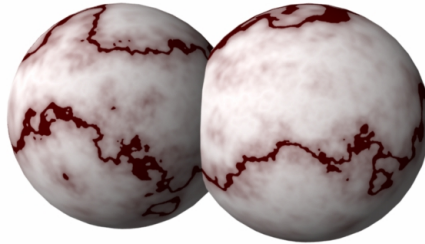# Converting 3D Textures
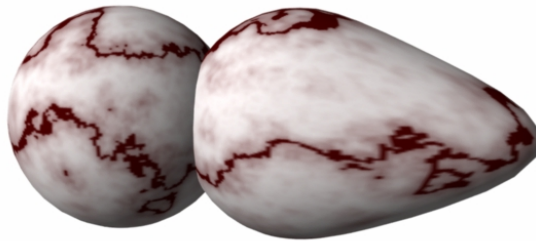## to 2D Textures

Maya 2013

Concept
- if you apply a 3D/solid texture to a model, and
- if your model deforms/changes shape,
  - the model will appear to slide through the texture volume
    - because the texture volume is stationary
    - but the shape of the model is changing
- solution -- convert the 3d texture into a set of 2d textures
  - the 2d textures look identical to the 3d texture
  - but they deform with the model's deformations
- also useful in the Real-time Game industry
  - since 2d textures render faster than 3d textures

Create a simple NURBS model
- model two NURBS spheres
  - make them intersect each other
- drag to select both spheres
  - >Edit >Group
    - to make a null node parent of the two spheres
- >Window >Rendering Editors >Hypershade
  - >Create >Materials >Lambert
    - for its color use

- >3D Textures >Marble
- >Render >Render View
  - to see the marble texture on both spheres
- deform one of the spheres
  - by moving some vertices
- re-render
  - the deforming sphere slides through the 3d texture

Convert 3d texture to 2d textures

- each sphere will get its own 2d texture
- select each of the sphere nodes
  - do <u>not</u> select the null, parent node of a hierarchy
    - make sure you select the sphere nodes themselves
- in the Hypershade window
  - shift-select the3d texture
    - you must have the models and the 3d texture selected simultaneously
    - >Edit >Convert to File Texture []
      - increase the X/Y Resolution to 512
        - for a higher quality texture image
      - change the File Format
        - for example, to TIFF
          - so you can bring the textures into Photoshop if you want to
  - > Convert and Close

- this creates two new Lambert materials
  - one for each sphere
  - each material has its own 2d texture image
- deform one of the spheres
  - by moving some vertices
- re-render
  - the 2d texture now sticks to the sphere as it deforms

For Polygonal Models
- not all polygonal models in Maya have a mapping method assigned to them
  - see tutorial *Texture Mapping Polygonal Models*
- if your model does not have a mapping method,
  - assign a mapping method to your model
    - select your polygonal model,
    - >Create UVs
      - select either >Planar Mapping, >Cylindrical Mapping, or >Spherical Mapping
- now, proceed as above to create 2d textures from your 3d solid texture