

Description of "Santa Clara Falls"
By Gavin Miller and Ned Greene,
Apple Computer, Inc.

"Santa Clara Falls" is a still from an experimental animation "Flow" which attempts to create convincing depictions of water in its many forms. The landscape for this still was inspired by the desert in Arizona. Bringing water to such a desert was part of the inspiration.

The piece was produced using proprietary animation and rendering software at Apple Computer Inc. The water was animated using a combination of mesh-based fluid dynamics and interacting particle systems. The positioning of the spray resulted from the simple placement of a lake of water above the falls. As the water sloshed over the edge, particle spray was cast off. The spray is self-shadowing and was depicted using a form of volume rendering called "splatting". The terrain was modeled using an interactive paint program to create the depth map. The colors were taken from actual photographs of Bryce Canyon.

Description of "Greek Gods"
By Gavin Miller and Ned Greene,
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"Greek Gods" is a still from an experimental animation "Flow" which attempts to create convincing depictions of water in its many forms. This image is a light-hearted self-portrait of the "artists" spouting particle system water into a water mesh pond. Their heads were scanned-in using a Cyberware depth scanner. The heads were then texture-mapped using a novel technique called "accessibility shading" which creates the appearance of old stone or old bronze. The accessibility shading simulates the appearance which results from trying to clean away accumulated dirt using a finite-sized cleaning device. Dirt remains in the inaccessible corners.

The piece was produced using proprietary animation and rendering software at Apple Computer Inc. The water waves were computed using a mesh-based dynamics formulation. The caustics on the bottom of the pool were computed using a light-tracing algorithm, which shoots rays from the light into the scene and then uses sparse reconstruction to compute the local intensity.