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Tech Note #4

3-D SCENERY: Irregular shapes with fiberglass

Problem:

How could you build a free-form tree shape that can withstand the abuse of having a treehouse in it and some kind of ladder on the front which people must climb on during the show, the surface of which wouldn't be utterly destroyed?

(This may become a component of my new final project proposal.)

Suggested Solution:

Under these conditions, papier-mache will not be sufficient.

Build a skeletal frame from wood. Overlay with fiberglass (using chicken wire shaping where needed).

How to:

Draw the tree in cross-sections. Build a sturdy central core of platforms in a rectangular shape that fits within the tree, with the platforms overhanging in the shape of the cross sections. For out-of-the-way (such as high) branches, only a central beam with cross-sections is needed. A central beam going to the grid would help stabilize the unit.

Shape and staple chicken wire around branches, roots, and any other more shapely regions of the tree (such as a knot-hole). Where the chicken wire overlaps with the next piece, wire the ends together and twist wire ends into the piece. Staple fiberglass cloth in place over the chicken wire and contours. The resin and hardener mixture is kind of nasty so wear gloves when working with it (cleans up with acetone). Apply resin/hardener to the cloth.

This technique results in a very durable outer surface. Care must be

taken when working with fiberglass, as not only is the resin/hardener component nasty, but you need to use a face mask when you sand it because you don't want to breathe in the dust, and you need to clip off surface threads because they're sharp.

References:

Arnold, Richard L., *_Scene Technology_*, 2nd Ed. Prentice Hall, 1990.
Specifically, Chapter 5: Two-Dimensional Scenery