

0. MAKING MEDIEVAL GLASS - Story Preface

1. MAKING MEDIEVAL GLASS

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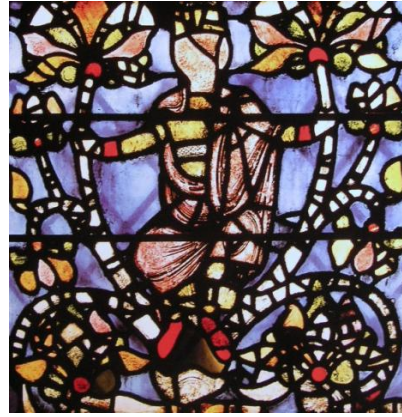
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This detail from the Jesse Tree window, at York Minster (a cathedral in York, England), depicts what may be the oldest surviving medieval-era stained-glass window in Britain. Historians believe an artisan created this piece of art sometime between 1150-1170. Image online, via Wikimedia Commons.

What we know about creating medieval glass comes from a monk named Theophilus. Around 1100 AD, he decided to tell others how to make a variety of things - including colored glass and stained-glass windows.

Here's what he says about making glass:

If you have the intention of making glass, first cut many beechwood logs and dry them out. Then burn them all together in a clean place and carefully collect the ashes, taking care that you do not mix any earth or stones with them.

Why use beechwood, as opposed to some other type of wood? Because it forms potash, an alkali which breaks silica bonds. Theophilus continues:

*After this build a furnace of stones and clay, fifteen feet long and ten feet wide ... by Theophilus, included in the Treatise On Divers Arts, translated from Latin by Hawthorne and Smith. (*The Art of the Worker in Glass*, page 49.)*

So the ashes of beech trees, according to Theophilus, are an important component of medieval glass. The same is true of sand (also a key ingredient in modern glass making):

When you have arranged all this [making and setting-up three different furnaces], take beechwood logs completely dried out in smoke, and light large fires in both sides of the bigger furnace. Then take two parts of the ashes of which we have spoken before, and a third part of sand, collected out of water, and carefully cleaned of earth and stones.

*Mix them in a clean place, and when they have been long and well mixed together lift them up with the long-handled iron ladle and put them on the upper hearth in the smaller section of the furnace so that they may be fritted [which minimized gas bubbles from appearing in the final glass]. When they begin to get hot, stir at once with the same iron ladle to prevent them from melting from the heat of the fire and agglomerating. Continue doing this for a night and a day. (On *Divers Arts*, page 49.)*

Into what type of pot did medieval glass makers put their ash-sand mixture?

Meanwhile take some white pottery clay, dry it out, grind it carefully, pour water on it, knead it hard with a piece of wood, and make your pots. These should be wide at the top, narrowing at the bottom, and should have a small in-curving lip around their rims.

*When they are dry, pick them up with tongs and set them in the red-hot furnace in the holes made [in the hearth] for this purpose. Pick up the fritted mixture of ashes and sand with the ladle and fill all the pots [with it] in the evening. Add dry wood all through the night, so that the glass, formed by the fusion of the ashes and sand, may be fully melted. (On *Divers Arts*, page 49.)*

Medieval artists then cut the glass as needed, positioning bits of product over designs they created on a board (much like working a puzzle). If details (like shadows) were needed, the glass worker painted on the glass and then fired it (to make those additions a permanent part of the work).

Stained-glass windows were becoming popular when Theophilus memorialized his sand-ash recipes. Let's examine why.

See Alignments to State and Common Core standards for this story online at:

<http://www.awesomestories.com/asset/AcademicAlignment/MAKING-MEDIEVAL-GLASS-Stained-Glass-Windows>

See Learning Tasks for this story online at:

<http://www.awesomestories.com/asset/AcademicActivities/MAKING-MEDIEVAL-GLASS-Stained-Glass-Windows>

Media Stream



Beechwood Logs

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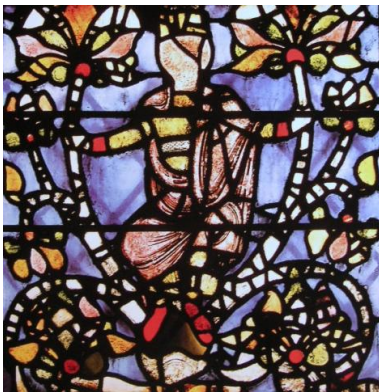


Beechwood Forest - Source of Medieval Glass

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MAKING MEDIEVAL GLASS

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How to Make Glass - Modern Times

Clip online, [Corning Museum of Glass](#).

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<http://www.awesomestories.com/asset/view/How-to-Make-Glass-Modern-Times>



Stained-Glass Windows - How to Cut Glass

Clip online, courtesy Corning Museum of Glass.

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