Preservation in Progress: Filling Cracks in Monticello's Wall Panels

by Lucy Midelfort - April 24, 2019

During an annual inspection of Monticello, we noticed that the material that has been used to fill cracks on several of the wooden panels surrounding Monticello's main floor doorways is failing in some areas. Since wood expands and contracts with changes in temperature and humidity, cracks in wood are common in panels where the wood is anchored on all sides (by paint, in this case). Since Monticello's interior climate is tightly controlled, these cracks aren't new; they have been present for decades and filled (perhaps more than once) in the past.

In the case of these panels, the prior fill has separated from the rest of the panel over years and it is time to begin again. Repairs like these along with touching up paint, polishing the Parlor's parquet floor, repairing plaster, and ensuring door locks are in good working order, are typical of the work done by Monticello's Restoration Department.

A previously filled crack in the door surround between the Parlor and Dining Room, before treatment.

Our current process of filling the cracks in the wood panels was chosen for its reversibility, stability, and longevity. It differs slightly from the technique used in these cracks in the past, in that it involves using wood to fill the larger areas instead of a thick moldable fill material, as well as all reversible materials. The advantage to this technique is that the wood used in the fill will expand and contract in a fashion similar to the wood on either side, making the treatment more likely to last for decades.

The first step of the process is to carefully remove the old fill material and brush on a reversible, thermoplastic resin—we use Paraloid B72, a favorite among art and architecture conservators—to isolate and protect the Jefferson-era wood.

Next we infill the wider portions of the crack or gap with lightweight balsa wood, which gets secured with fish glue also chosen for its reversibility. Any tiny cracks on either side of the balsa are then stuffed with cotton soaked in reversible B72.

The final step involves applying a chalk-based wood filler to the surface, making sure it lies flat. Then, all that's left is to prime and paint. The result is a smooth surface with the original material is carefully protected underneath.

Many thanks to the talented conservators at Materials Conservation Collaborative in Philadelphia, PA for helping determine the best method!

Restoration Specialist Carol Richardson cutting balsa wood to fill the wider portions of the crack.

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