Historic Paint Finishes Study:

Two samples from the Interior of the Forgeman's House
Catoctin Furnace, Maryland

Prepared for:

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Date: 29 January 2015

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Introduction

At the request of Elizabeth Anderson Comer, Archaeologist I visited the Forgeman's House at Catoctin Furnace, Maryland. The interior is fascinating in that the ghosting of original woodwork is clearly seen and large expanses of original plaster, covered with lime whitewash are clearly seen. The original surfaces were entombed behind later wall surfaces installed in various modernizations. The protruding woodwork was removed at that time.

View of the interior, first floor, Forgeman's House. Note the ghosting of the chair rail, baseboard and board wall.

Most all of the original trim woodwork had been removed over time, however, one surviving original trim element, the door frame to the rear door did survive and was subject to collection.

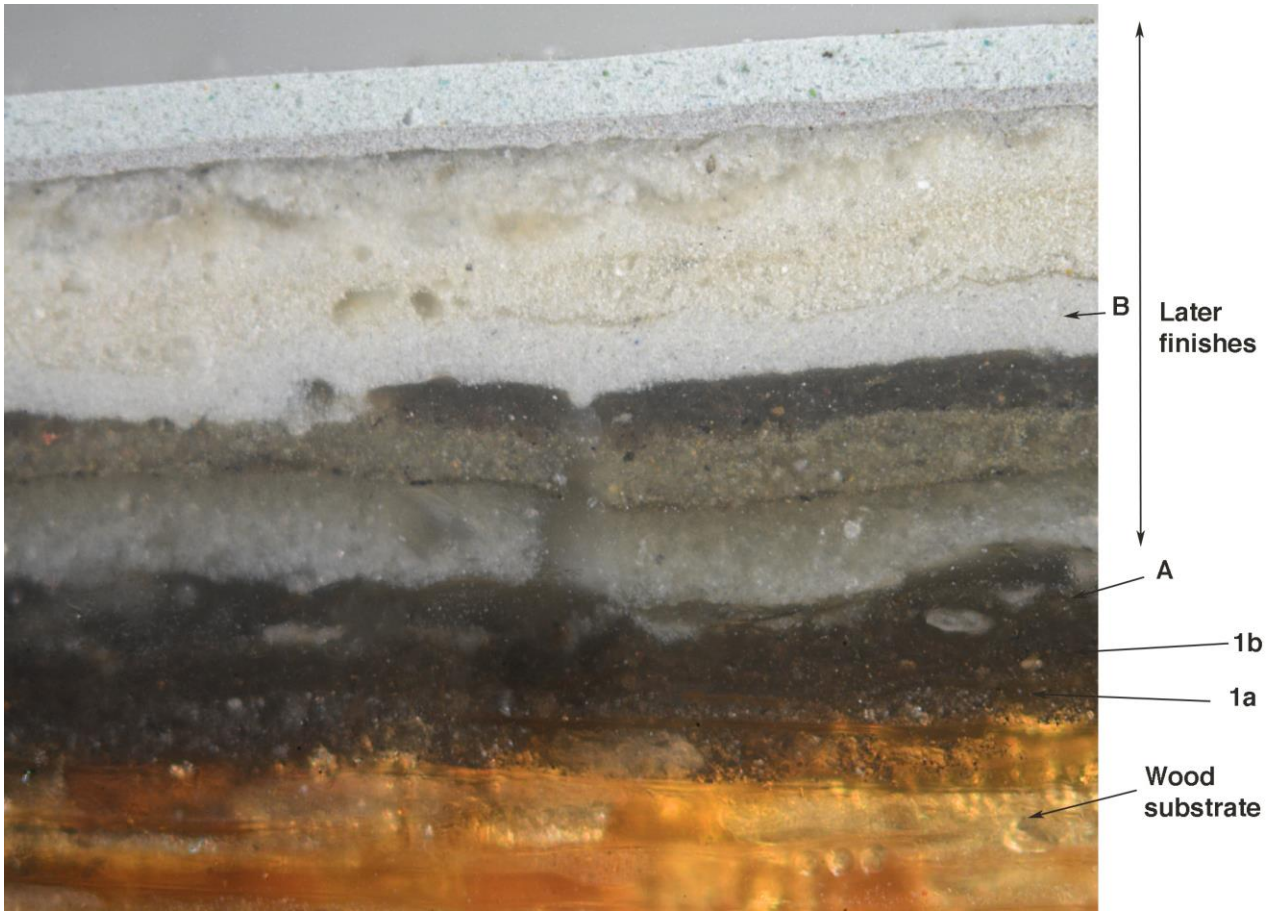
Original Door frame:

Note: The original door frame, which has been overpainted several times is seen in place, painted a blue-green enamel from the late nineteenth or early twentieth century. Note the ghost marks of the woodwork: 1: shelving, 2: chair rail 3: baseboard.

On site photograph: Original door frame, lintel

Photomicrograph: Sample from original Door Frame; Door to rear door

Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective,(100x microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note: The sample has been mounted in polymer resin, cut and polished to 8000 micron polishing cloth for additional examination. The wood substrate is seen at the base of the sample. The first finish is a carbon black finish, applied in two layers (1a, 1b). The finish had some varnish in the composition and would have had a glossy finish. There is a heavy accumulation of surface particulate, soot and oily smoke is deposited on the surface [A]. The layer B appears to be mechanically made, probably late nineteenth century.

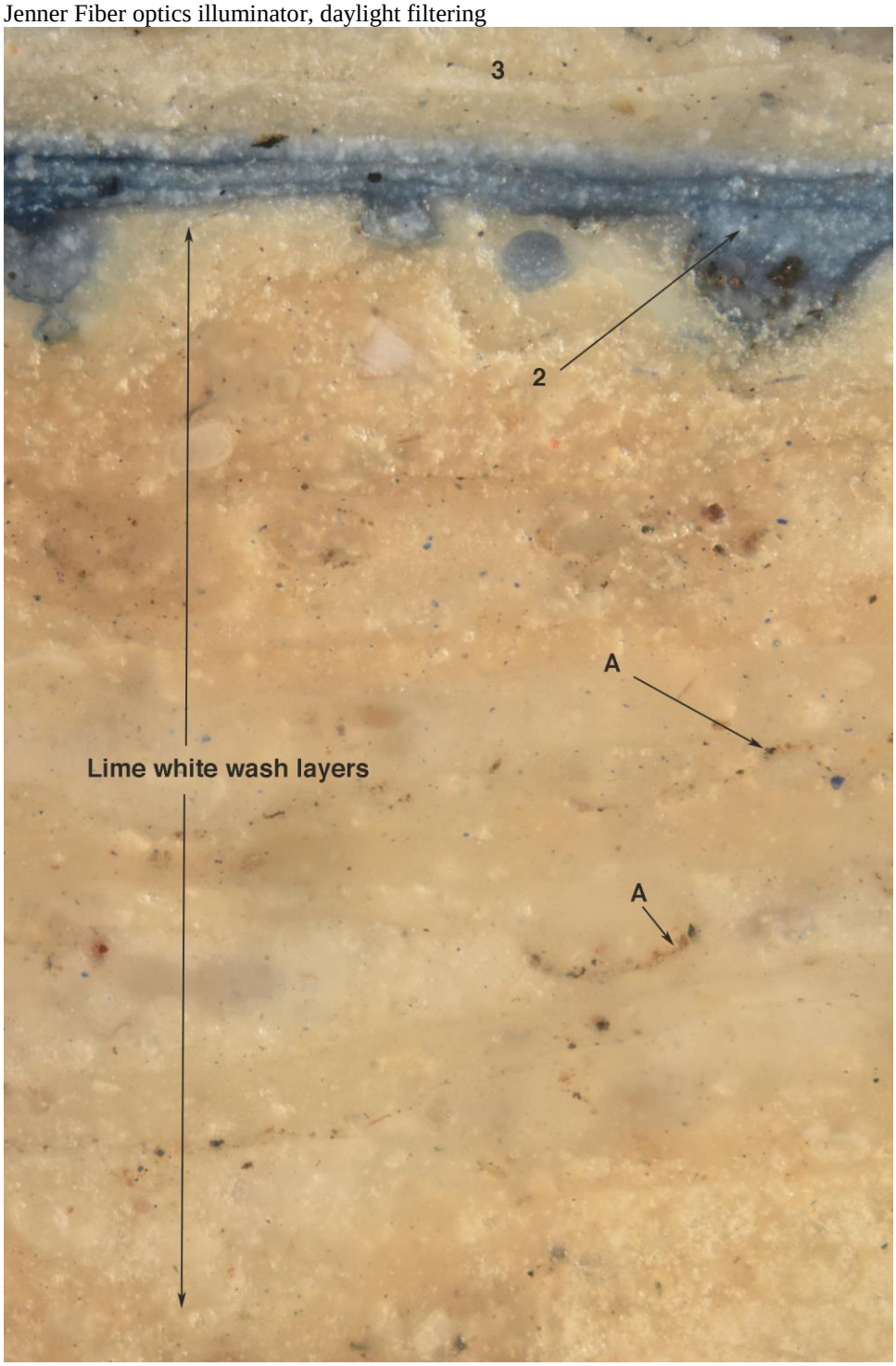
Plaster surface and the Lime whitewash

The plaster was painted repeatedly with lime white wash and later in the history of the house, a blue distemper finish was applied. This blue finish was probably applied in the early twentieth century.

Note the lime whitewash layers and the prominent blue water bound finish followed by additional lime wash coatings.

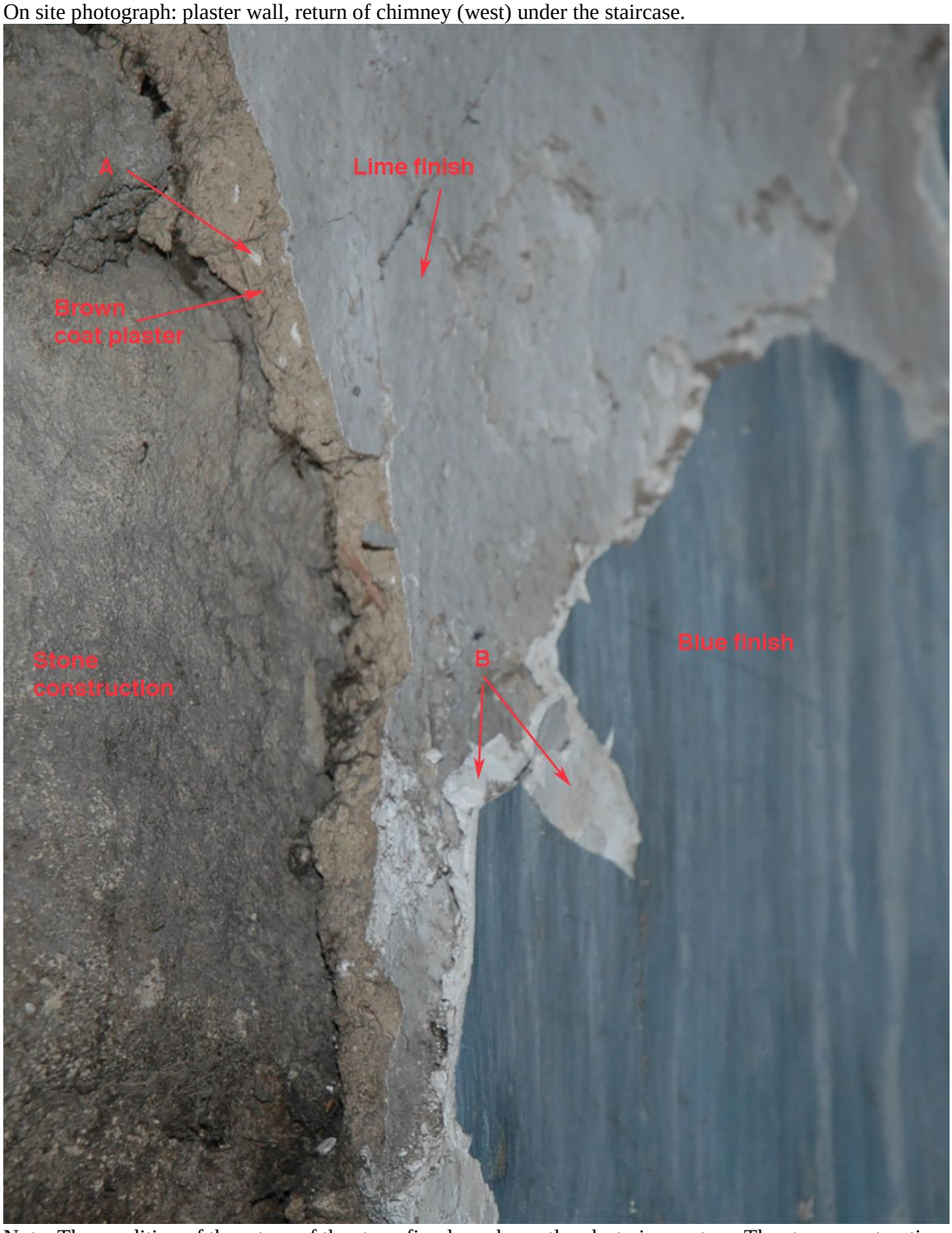
The sample collected for examination was taken at location 1.

Photomicrograph: Sample of plaster with finishes, (east wall)
Photomicrograph: Mounted sample, Olympus BMAX-50 polarized light microscope/ 10x objective,(100x microscopic magnification) with Nikon D70 digital camera body Lexar Media 1GB flash card Dolan Jenner Fiber optics illuminator, daylight filtering



Note:
The sample has been mounted in polymer resin cut and polished to 8000 micron grit polishing cloth for additional examination. There is a heavy accumulation of lime white wash layers: the yellowish color is caused by the polymer mounting medium. There is evidence of the surface particulate on some of the lime whitewash layers (A). The blue layers (2) are clearly later in the history of the house. Additional lime coatings are also seen (3).

On site photograph: plaster wall, return of chimney (west) under the staircase.



Note: The condition of the return of the stone fireplace shows the plastering system. The stone construction was covered by a brown coat plaster, that had hair, fibers, and lime; note some of the larger pieces of lime within the brown coat matrix (A). The surface of the brown coat was given a white coat of lime (probably two to three applications of a lime whitewash.) Later lime coatings are seen (B) and these are finished with the blue coating, which appears to be made with a prussian blue in a whiting distemper.

Considering the surviving historic finishes and suggested finishes for the interior

There are two finishes that survive in the Forgeman's House: a black oil based paint and the lime white wash. The black oil based paint finish was probably used on the following:

Chair rails
Baseboards
Door frames (as in the case of the surviving example)
Doors
Window frames
Window sash

Color: to match Munsell N 2/ Gloss level: modern semi-gloss

The lime whitewash was used on all plaster surfaces and would probably have been used on:

Board walls
Ceilings
Exposed joists
Exterior wood frames: based on the exterior edge of the surviving door frame that was an exterior surface.

Lime white:
The best source for a suitable lime white is:
Lime*Works*.us
PO Box 151
Milford Square, PA 18935-0151
Phone: 215 536-6706

The suggested color is: St. Astier "Natural" which is an appropriate historical lime white.

The Black oil based finish:

This matches a Munsell Color Standard: Neutral N 2.0, which is included in this report. The finish paint should be a modern latex-acrylic paint because the latex paint will retain brush marks in a manner similar to the early highly pigmented early oil based paints. The gloss level should be a modern semi-gloss finish.

Note regarding the black finish

The use of a black finish as the principal woodwork color is not often encountered. It has been found more often in houses built by German immigrants or their descendants. What is very interesting, however, is that the carbon soot that is the pigment would have been abundant at this site because of the Furnace operation. This black paint might have been used on exterior woodwork as well, particularly the moving elements: sash and doors.

Color Standard:
Note: The Munsell Color System was first developed in ca. 1900 by Professor Albert H. Munsell and has been accepted as a universal standard of color notation. It is not a paint company: the color standard will have to be matched at a paint company (suggested sources: Benjamin Moore or Sherwin-Williams Paints). The gloss level should be a modern semi-gloss.

Munsell Color Standard: Black: Munsell N 2/

Note: Additional color standards are available from:
Munsell Color
4300 44th Street SE
Grand Rapids, MI 49512
1-877-888-1720