

Sherman Art Conservation Studio

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Conservation Report for the Restoration of the Chandler Murals in the Buffalo Room at Coe Hall

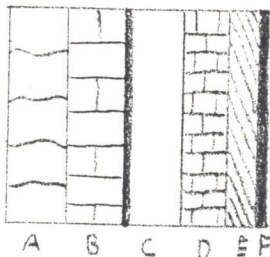
State of Conservation

The murals were executed in a tempera medium (possibly glue tempera) painted over a molded stucco surface which is composed of Plaster of Paris with the addition of sand. The parts of the wall depicting Indians and animals have been gilded and then partially painted over. The murals were heavily restored in the late 1970's and were much painted over. Many areas of the lower portion of the mural as well as the entire sky, were entirely re-painted.

The murals are in extremely deteriorated condition as there is active flaking and paint losses throughout the room. In many areas there is an efflorescence of the stucco which is the main cause of the flaking (for a detailed description of the flaking see below). The mural is covered by both a layer of re-painting executed in Acrylic and Latex paint as well as a reddish-yellow toned synthetic varnish.

Causes For Deterioration

Cross-section of wall, Buffalo Room:



- A. Exterior wall- blocks of Indiana limestone.
- B. Sustaining wall- brick (24") with asphalt covering.
- C. Air space between brick walls (20").
- D. Hollow brick wall.
- E. Wire mesh or wooden panels attached to brick wall.
- F. Plaster and pictorial layer.

Probable causes of the efflorescence on the paint layer:

1. Leakage from the pipes that pass through the air space on the west and south walls and over the vault, and in the ceiling above the vault (floor of room above).
2. Infiltration of water from the roof. Given the structure of the building, even a small roof leak could seep in through the airspaces between the walls and appear in an area a long distance from the source of the leak.

In order to confirm hypotheses 1 and 2, it is necessary to have a thorough check of the state of the roof, pipes and walls of the building to look for leaks especially after the heat is turned on and after prolonged periods of rain. Checks should also be made inside the vault above the Buffalo Room to check for any moisture on the back of the walls and ceiling, whether through leaks or condensation.

3. Condensation on the inside of the plaster wall that is the base of the pictorial layer. This plaster was applied on top of wire netting anchored to the hollow brick wall by metal supports on the north and east walls and on top of wooden panels on the west and south walls. The plaster layer has a thickness of approximately 1 to 1½ inches. When the temperature within the Buffalo Room reaches a high temperature of over 75 and the outside atmosphere reaches a high relative humidity (rain, fog, ect.), moisture penetrates through the glass doors (which should be double-glazed) and increases the relative humidity within the room, which can rise to 50/60% R.H. with a temperature of 75 . Since the airspace within the walls is at a much lower temperature (say 40), the cold wall phenomenon is created. Humidity then condenses inside the plaster layer or on the reverse of the plaster given that 50% Absolute Humidity at 75 is equivalent to 100% Absolute Humidity at 40 (condensation).

Treatment Performed

Consolidation: Loose efflorescence was scraped off the surface where possible. The pieces of loose plaster/paint were then consolidated using Rhoplex 234 (Acrylic resin). The Rhoplex was applied using syringes in various solutions ranging from 60% in water to 100%. For larger areas of losses, Liquitex Matt Medium (Acrylic resin) was used for the consolidation.

Cleaning: The varnish and re-painting covering the upper parts of the walls and the lunettes, were cleaned with Acetone. The lower parts of the wall and the ceiling were left uncleaned because those areas were heavily damaged under the existing re-painting.

Filling: Areas of missing plaster/paint were filled using DAP Vinyl Spackling Paste with the addition of PVA resin. A small missing knob from near the entrance was re-cast in plaster of paris and was dowelled to the wall with Devcon 5-minute Epoxy resin.

Reintegration: A primer of Kilz (Alkyd resin based sealant) was applied to areas of losses on the ceiling where the plaster was still damp (from the leak in the Spring of 1988). Retouching was performed with Liquitex Acrylic Polymer colors. Missing areas of gilding were retouched with bronze pigments in Acrylic B-72 resin. No protective coating was applied as it is important to allow the walls to breath which would help prevent future deterioration.