

THE FAIRFIELD~CAMPTON CRIER

"HE LIVES TWICE WHO ENJOYS BOTH THE PAST AND THE PRESENT" ~ MARCUS MARTIAL

GARFIELD FARM MUSEUM VOL. 26 December 2009 NO.2 BOX 403 LaFOX,IL 60147-0403

SOUTH WALL OF 1842 BARN RESTORED

What took a few milliseconds of lightening to do started a 4 year process to begin the restoration of the museum's oldest building, the 1842 hay and grain barn. Mid-afternoon in August 2005, Dr. David Heinze



and museum staff Dave Bauer and Tom Hillier, were the heroes of the day as Heinze first spotted the fire from LaFox Road, called 911 and then told staff. Hillier and Bauer put hoses to the fire slowing it down so the fire

department could arrive to extinguish the blaze.

Chubb Insurance promptly responded and issued a check which made it possible for carpenters Azemi & Sons to secure the roof and south wall. Initial studies by architect Walker Johnson of Johnson Lasky of Chicago indicated that the fire damage to the roof and wall was mostly cosmetic. This then started the budgeting process to restore the roof. A \$15,000 Kane County River Boat grant was given to get the restoration started. Our donors stepped forward and in July of 2008, Rick Collins of Trillium Dell Timberworks, further analyzed the barn, determining what needed doing and how the entire barn might ultimately be restored. Producing some excellent 3-D drawings and a research paper on the barn's design published in the British *Mortise and Tenon*, an added observation changed how we anticipated restoring the roof.

The roof board pattern that survived over time consisted of a 3 inch oak board, an inch gap, then a 6 inch pine board, an inch gap and then another 3 inch oak board. Trying to understand this pattern in the past, the museum assumed Timothy Garfield was allowing additional air space with the narrow and then wider roof board pattern so the shingles would dry out faster and last longer. After considering this, Collins proposed that the original pattern consisted of the 3 inch oak boards placed about 10.5 inches apart and that the shingles were actually 30 inches long. In theory, in 1842 there still was abundant wood that one could get larger shingles. By 1849, when Timothy built his horse barn, a more standard use of a 10 to 12 inch roof board was in use as only shorter 16 inch shingles could be found. Whenever the 1842 barn was re-roofed with shorter shingles a the 6 inch pine boards were installed. This and his examination of the south wall, Collins concluded the best step would be to restore the south wall before the roof was restored. Over the winter, Trillium Dell milled the 30 inch white oak shingles and the 3 inch oak roof boards or purlins.

With work scheduled to begin in September 2009 as the museum donors had raised enough to start the south wall, Collins was approached again about the siding. Initially from a cursory examination in 1998 by



barn expert and restorer Richard Babcock of Hancock.MA , the late barn photo documenter Wayne Price, and barn historians Bob Sherman (both of Springfield, IL) and Darryl Watson (Galena, IL) well worn, wide (20 -22 in.) siding boards inside the 1930s corncrib seemed to have been the only original siding. Anticipating this, an order for wide white pine siding was placed. On one more trip to look a the barn, a closer examination by Collins revealed that much of the barns original siding survived elsewhere. Probably Garfield bought a lot of siding of various widths. By chance, the widest boards had been put on in the northeast corner and exposed to 30 years of corn on the ear, had worn down the vertical saw marks scars usually indicative of older siding. This presented the dilemma of wanting to keep as much of the original fabric of the building.

Without museum restorationist, the late Eve Johnson, to remind us of this, it was the visit by Dutch windmill preservationist Lucas Verbij of Holland, who stressed restoring the barn as is and not disassembling it. One can keep original though damaged wood members using epoxy resins, hidden metal rods or plates for strength or bulk.

Collins suggested reversing siding as the exterior was deteriorated from exposure. The other option, "ghosting" was to remove the siding, put on all new and then put old back on so the exterior looked the same. This presented a problem of exposing the original siding to further deterioration. Paint was not used on barns in the 1840s so a bare wood look is appropriate. This original siding though had remnants of red paint on it as the barn was painted later in the 19th or early 20th century. The solution: put the new siding on top of the old and when inside one would see the old faded interior while Mother Nature (i.e. ultraviolet light) fades out the exterior. This is also reversible if needed in the future.

All this was decided before the wall was opened up.



Finally, the crew of TDT arrived and started removing and labeling the siding. Once exposed the fire damage



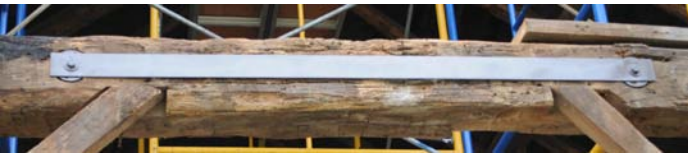
was even less than feared. Ultimately one half rafter, a nailer (a cross piece to attach the siding between beams),

and an angle brace had to be replaced. Opening up the wall revealed the real damage over time. Both the sill (the beam that sits on top of the foundation and



the cross tie beam about 8 feet above, had serious cases of hollowing and rot in their mid points. The cross tie beam especially needs to carry weight so the

first thought was to lap in (scarf in) and replace that portion with new or a salvaged beam. Just filling the hollow with epoxy resin would not be enough. Discussion eventual produced the idea of using shear rings to fix a metal plate with lag bolts into the beam. Imagine the shear ring like a donut and then cutting out the wood so the ring sits flush with the surface.



This provides more surface contact and strength than just a lag bolt anchoring the metal plate at each end. The metal plate was put on the beam side facing the siding and thus hidden from view. The hollows were epoxy filled. With the 3 ½ stories of scaffolding, it was possible to get up close and personal with the barn's roof system. Azemi and Sons, who will restore the roof, agreed with TDT that before the roof could be done,

the beams supporting the rafters needed to be leveled. Presumably sometime after 1864 when the barn was moved intact to the hillside by the road across from present day Burr House (the visitor center), a hay carrier fork system was installed to efficiently fill the hay mows. However, a beam or girt that housed floor joists for a loft and two restraining beams that held the upright beams that supported the roof had been cut out to make way for the hay carrier. Right here was the start of structural compromise for this barn. To level the roof, the purlins and plates, these beams had to be installed. This was the most unnerving step. To fit a beam in, the barn had to be pulled apart at least 4-6 inches. Using a series of straps and "come alongs" (simple wenches) the crew carefully but steadily pulled the top side walls outward. You could actually see these massive beam systems move! One kept waiting for a pop or collapse or at least the overturning of the work truck to which some of the strapping was anchored. Now no crew of two is going to shoulder a 500 pound plus green oak beam up 2 stories on ladders. Just fitting, a large forklift was gingerly driven into and between the beams of the barn to do the lifting. Again, breath was held during this procedure. Now when the roof is restored, 2-3



inch shims that were installed in the 1983 roof repair to level the roof line can be removed as the rafters will go back into place roughly where they were 167 years ago.

With everything pegged in place, lower beams jacked up, it was time to side up the south wall. First the labeled original siding was put back up and then, salvaged siding from other old structures put in place where the fire had done its work. So installed, the museum staff removed the southwestern corn crib opening up the original space of the south half of the barn. Finally, the new, bright yellow siding was installed over the original siding. Come spring in safer weather, Azemi and Sons can finally restore the roof. That will leave 3 walls, the doors, and the interior floors and lofts to reconstruct as much of the interior was removed after the barn was moved in 1911 to its present day location. Archaeological research and careful supposition may ultimately identify the original build site for the barn where it will hopefully return.

In the meantime, it is critical to raise the funds to continue the barn's restoration. A minimum goal of \$200,000 will be needed.