

Weekly work updates from February 2004 through December 2004 on the restoration of the 1895 lumber schooner *C. A. Thayer*

March 15 - 19, 2004

A correction, or perhaps amplification, on the joint of the topside planking with the transom planking. Last week, we had only seen, or considered, the connection in way of the bulwark planking. The bulwark planking is, indeed, only two inches thick. The miter joint with the four inch transom planking, at approximately 45 degrees, indeed leaves two inches of transom planking end-grain proud of the bulwark planking. However, when the transom planking meets the full 4" topside planking, we see a full miter joint, which is in fact carried across the bottom of the transom.

We got a look at the top of the clamps today (Monday). We find that the forward portion of the clamps are made up out of three 4" timbers. These seem to taper into a solid timber at Fr. #15. We searched for a scarf along the top of the clamp, aft of Fr. #15 without success. As far as we can tell at this point, the clamp, 12" thick and up to 16" wide, is a single piece from Fr. 15 aft to Fr. #58 where it stops.

This week has mainly been about straightening the keel, or dropping the hog out of the boat. We had measured 16" of deformation in the keel. The ends had sagged by this amount in relation to the more buoyant midsection. The boat was blocked at 12" of hog when she was hauled out for this project, so that an initial 4" were settled out as she came to rest in the dry dock. This was done without apparent problems.

On Monday, a subcontractor began to set up the operation to lower the keel. He brought a total of seven hydraulic jacks, which were set up along about fifty feet of the midsection. The keel was initially raised about a half an inch to allow the blocking to be freed up for adjustment.

The NPS team was not particularly pleased with this set up. With the hydraulic jacks spread along the keel to take a maximum length of load, their lifting capacity was strained to the limit. The whole thing looked a bit dicey. At best, only a limited section of the keel, perhaps a quarter of the length, could be lowered as a unit. We feared that this might set up unequal strains. The contractor apparently did not like it much either.

On Tuesday, the subcontractor brought in a batch of heavy screw jacks, about a dozen of them. Working with the Bay Ship gang, he spent the day setting the screw jacks along the length of the keel, using the hydraulics to get the initial lift to adjust the blocking. This looked a lot better to all concerned. They were ready to begin lowering by Wednesday morning.

No one was quite sure how quickly the straightening process could or should be done. We had generally visualized the process as taking a couple of weeks. We were not at all sure how the hull would react. Would the keel immediately drop as the screws were backed off, or would it need some time to settle? Would it move at all? Perhaps the

deformation was permanently fixed in the timbers. There was a considerable range of opinion, but all agreed that the process had to be well enough controlled that there could be no question of cracking or straining the keel.

In the event, it took about six hours to get the keel down flat. The jacks were spread out widely enough that the keel was handled as a unit. Turn by turn, the arc of the hog was eased out. Crews were stationed inside and outside of the hull, watching for any sign of strain, everyone in contact with walkie-talkies. As the keel came down, the bottom of the stem post, the forefoot, began to rise off its block, pulled back toward its more upright original position. The bilge shores along each side of the hull were eased, again with a screw arrangement, to avoid their ever taking the full weight of the hull. The slight port list of the hull as she had previously sat was corrected as the hull came down. The scarfs in the keelsons, which had opened to a gap of 5/8", began to close. The hull was acting as an integrated, flexible unit, and was visibly regaining her designed shape. By about 2:30 the keel was flat.

It was only as we stepped back from our initial elation at the day's progress that we began to see a somewhat startling reality. Although the keel was now flat, the line of the garboard strake, at the top of the keel outboard, was still slightly bowed or hogged. There was still a suggestion of hollow in the bilges amidships. It became apparent that the hull must have been built not with a straight keel, but with a bit of sag built into the structure. It looked like about four inches of sag would bring the line of the garboard joint, the "rabbet", into a straight line. This would also apparently settle the last of the hollow out of the bilges. In designing the contract specifications, none of us had anticipated this. Apparently, the builders had allowed this bit of sag, a curve opposite to the hog which would eventually act on the keel, as a bit of spring loading against the bending force which they knew would effect the long, shallow hull. This rather subtle aspect of the construction was never recorded in the few original lines plans of these vessels, or in the surviving half-models from which most actually built. But here, clearly, was the incontrovertible proof that this was in fact the case.

So next week we will set up again to put a bit of sag in the keel, and go for a straight rabbet line. Probably the forefoot will have to come up a bit to get this just right. It is somewhat odd that given all the laser imaging and the potential for manipulation of lines within a CAD program, getting the shape right comes down in practical terms to the human eye. We will verify our conclusions with the lines drawing after the fact, but there is no question, looking down the length of the hull, that this last bit of tweak is required to bring her back to her intended lines.