PUDGE'S RESTORATION

THE STORY SO FAR...

By Peter Boss

Pudge was one of the last wooden barges to be built, launched in 1922 at Rochester. She was bought by the TBSC from her original owners and builders, the London & Rochester Trading Company Limited in 1968. At that time she was a motor barge and she was re-rigged and converted for cruising.

Through the 70s and 80s we tended to share the available restoration money between both our barges. Centaur got the largest share, which completely restored her bow and stern, as she was at the time in much worse condition than Pudge. Pudge's share bought her a new mast, rudder, stem, apron, transom, sections of inwale and chine, plus various new frames and planks.

In 1990 it became apparent that we could no longer delay the major rebuild needed on Centaur's midship section of her hull to stop the movement that was developing between the restored ends and the old middle. We decided to use all funds available to complete the project as soon as possible. This was completed in

The picture on the top right shows Pudge sailing in 1996 and the drooping shape of her bows shows up by comparison with the picture at the bottom of the page taken in 2003 after the bows had been rebuilt as described in this article. However the drooping stern is also apparent in the sheer line under the vang fall in the more recent picture. Photographs by Martin Phillips.

1995 but it pushed our financial resourses to the limit.

In the spring of 1997 while Pudge was on the blocks I got the Maldon shipwrights to make a close examination of the hull. This revealed that the underneath of the hull at the round of the bow was very badly worn. The keel where it protrudes below the planking at the stem was worn down by about 8 inches, the wear extending aft for about 30 feet but gradually tapering off giving the bows a pronounced and noticeable droop (as the photographs show).

We decided we would have to put Pudge into a dry dock and remove her stem and apron (see diagram2) and the planks below the waterline so that her bows could be jacked up to get back the original shape. A new section of keel 30 feet long would need to be fitted together with several upright frames and floors with navel frames (diagram 1) joining them together. She would probably need new forward frames to the deadwood knee and a new stem and apron. It was estimated that this would cost £45,000. We did not have the money to pay for this but we estimated that with subscriptions and charter deposits coming in early in 1998 we could afford to do the job

So, on 22 October 1997 Pudge was put in to a dry dock at Hedgecock's Boatyard Maldon and set down on blocks three feet high. The job was on. No going back now!

My role in the project was to set up a deal with Shipwright Company avoiding a fixed price contract, to allow as many of the menial tasks as possible to be done by our members and to liase with the shipwrights throughout. Organising member's working parties at weekends to do the work to help the shipwrights and to clear up all the waste thus saving us considerable labour costs. I also bought the materials and arranged specialist sub-contracts, for example, to make all the ironwork.

I soon realised that a big problem at the weekends was going to be caused by Centaur and Pudge being in different places and a shortage of supervision, as I couldn't be in two places at once. We resolved this by agreeing to postpone work on a section of Centaur's rail and covering board that Tim Jepson was to replace, and just to do the minimum work possible on her. This would be rigging and painting only, which would enable Tim and most of the workforce to work on Pudge. We could then replace a large section of her port deck and repair the main hatch, jobs that had become very necessary.

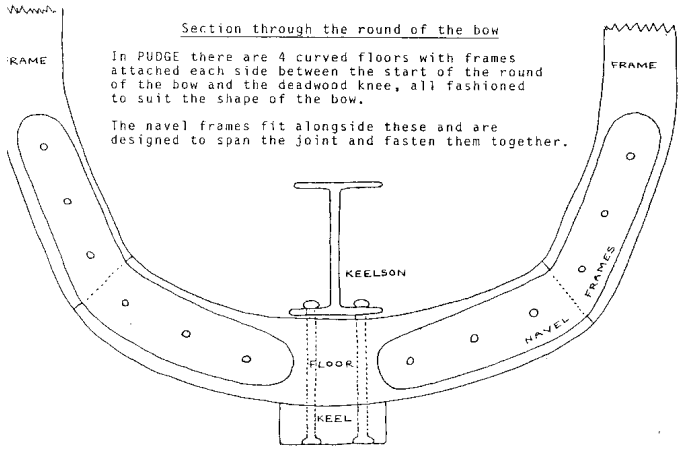


Diagram 1

Tim and I had worked very closely on Centaur's restoration and I could not have managed the project without his support, expertise and the immense amount of time he put in.

As the project progressed decisions had to be made on how to handle each section of the job. As with any restoration of an old craft or indeed an old building, until you start to dismantle the construction you can never be absolutely sure what you are going to find beneath the surface. There comes a point in the life of any old boat when small repairs and replacing odd planks becomes futile and only complete rebuilding can achieve the strength and structural integrity required. Pudge had reached that point.

Firstly the shipwrights jacked up the bow 8 inches, then fitted massive support legs on each side before the jacks were removed. They then stripped off the doubling from the underside of the bow. Doubling is 1½" planking fastened on over the original old worn planks up to the waterline to help stop leaking. Meanwhile we built a tent over the barge to protect her from the weather and stripped out the fo'c'sle fittings, floor, bunks

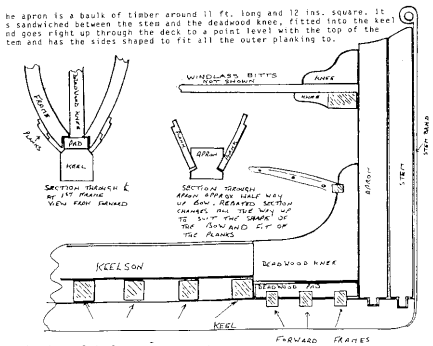


Diagram 2

etc to obtain access to the internal structure of the bows (see diagram 3 below). We also cleared out several tons of the waste timber stacked round the floor of the dry dock.

Removing the doubling and the fo'c'sle interior gave us a far better view of what we were dealing with. Much of the problem with Pudge's bows was not rot but damage. The port underchine plank was cracked right through. The chine is the edge between the side and the bottom of the barge. It consists of two large planks at least four inches thick,

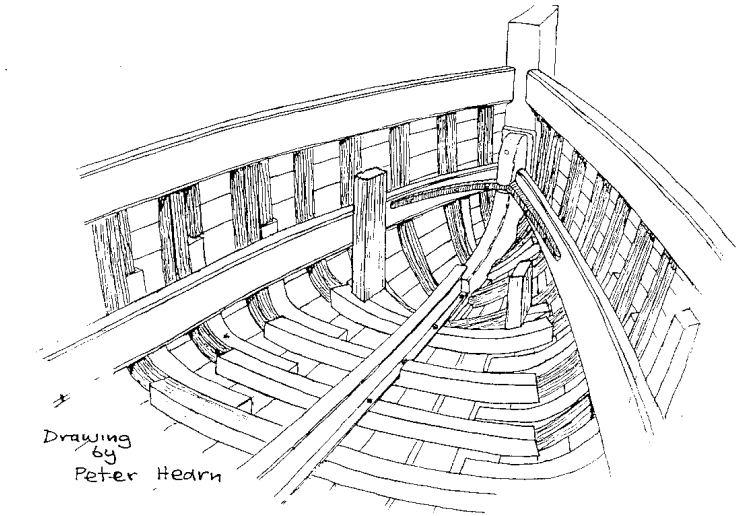
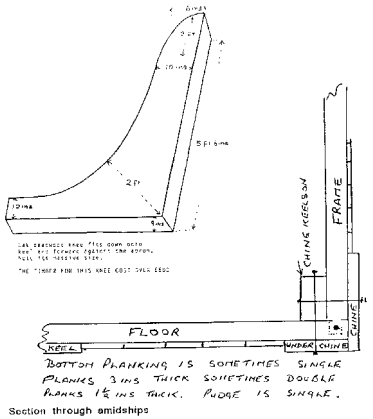


Diagram 3

one on each edge of the chine as well as an inner chine keelson (see diagram 4). Replacement of the chine would need a 26 foot plank bent right round the bow to the stem. Two of the main beams under the deck were broken at the ends where they fit to the frames and the knees that join them to the barge sides were cracked. She also had numerous cracked floors (frames which go across the bottom) side frames and planks. The force needed to crack right through ten inch thick oak timbers must be huge. But doubtless two collisions a sinking and a stranding, not to mention being blown out of the water by a mine at Dunkirk in 1940 all contributed to the poor condition of this 75 year old lady.

The next stage was for the shipwrights to remove the three inch thick planking under the bow, cutting each plank back to its first joint, which were all staggered to 24 feet back from the stem, and to prepare the joint for the new planks. Another great pile of debris for us to remove! It was then clear for them to cut out 28 feet from the forward end

From top left to bottom right:: The rotten keel removed; the jacked up bows;new floors and frames; shipwright Baden at work on the new runs of planking in to the bottom of the barge and the chines. Photographs Pat and Peter Boss.



Section through amidships

Diagram 4

The boiler used to steam the planks so that they would bend in to shape on the hull. Photograph Pat and Peter Boss.

of the keel. The original keel was made of two pieces of elm over forty feet long scarfed together. As elm of this size was almost impossible to obtain it was decided to join in a new piece of oak. We had bought a 35 foot piece of well seasoned oak that had fallen in the 1987 hurricane but a day and a half in to shaping the shipwrights found that it had rot in a knot right in the centre. Panic reigned for a time while we frantically searched for a new log but our luck was in. We located one, had it cut and delivered within a week. And we got a full refund on the original log.

Before fitting the new section of keel the iron stemband had to be removed. It was fastened by eleven bolts and dumps (large nails) some of which were 30" long and passed through the stem, apron and breasthook. Three members spent a weekend on a platform with wedges and sledgehammers trying to drive the bolts out. Finally, with the help yard's digger heaving on a heavy chain strop the stemband came free late Sunday afternoon.

After removal of the stem and apron it was time to start on the massive curved floors. The shipwrights persuaded me that because of the difficulty in fitting the floors under the steel keelson, cutting out the forward seven feet of keelson would save a week's work in fitting floors and it could be welded back later. That done they were able to remove the old floors one at a time and fashion and fit new ones.

There was neither time nor money to complete the rebuild the bow up to deck level that winter so we agreed to finish at one plank above the waterline. The navel frames were fashioned and fitted to the floors but their top ends were spiked to the old frames left in until we could replace the sides of the barge.

The last tricky job was the final shaping and fitting of the deadwood knee which fits behind the new stem and apron. Particularly as the big iron breasthook (the strap holding the bows together, see diagrams 1&3) could not be removed without the bow collapsing, making it necessary to fit the knee from the outside instead of the inside. It was tried for size and reshaped about four times before it fitted and each time the stem and apron had to be craned in and out as well.

While the shipwrights painstakingly assembled the bow we were working on replacing a large area of the starboard deck in which we found considerable rot. Much of this had been caused by movement because Pudge's main hatch coamings (the 5 inch thick plank that forms the side of the hatch)

are weak and sag so the deck is not supported as it was designed to be. Until we can afford to replace the coamings we have to rely on just replacing the deck and the carlings (half beams) that it sits on. We also replaced the deck in the bow under the windless, fitted new hatch cloths to the main and fore hatches, made all new skylights and built a new after companionway sliding hatch.

The shipwrights had now reached the stage of re-planking. We were able to buy an elm log which cut enough for the first 3 planks each side which include the garboard planks which are closest to the keel and have a 90 degree twist within the first 6 feet back from the stem. The rest was done in larch. Although this does not bend as well as elm it can be bought in the longer lengths needed for the outer planks. Pudge's planks are 3 inch thick and to obtain the bend and twist needed involves cutting the planks to shape, steaming them to soften the resins and then cramping them in place for 24 hours before finally fastening them in position.

As soon as the bottom planks were in place we cut out the old upright chine planks and side planking up to the waterline. This was when we found that the floors at the start of the round of the bow which are actually straight but attached to curved frames were joined by iron brackets, not timber navel frames due to the tightness of the angle between them. The floors were still in good condition but the iron and the frames were rotted away. There was no choice but to have new steel brackets made and do a temporary job with a short section of frame until we could pull the side of the barge out.

When the shipwrights removed the section of the keel they found the keelson bolts that go through the bottom, the keel, floors and the flange of the metal keelson were corroded down to half their size. The after third of the keelson bolts were replaced ten years ago but seeing the state of the forward third, I was worried that the middle section would be equally as bad so once again we had no choice but to change all the centre section keelson bolts. This meant that we had to take out six bunks, two bulkheads and half the galley. While the shipwrights were finishing off the planking we also took the opportunity to re-spike all the bottom planks of the hull.

We were into May 1998 before the job was finished. It had been a very hectic and difficult seven months, and for the last month weekend working parties took place every weekend but an essential part of Pudge's Restoration was now complete. While the shipwrights did their final finishing off over the weekend our members made a last huge effort. We had all her rigging gear brought round to us from Sailorman by pontoon,

Pudge on the slipway at Maylandsea in October 2000. Photograph Pat and Peter Boss.

The starboard bow planking removed. Photograph Pat and Peter Boss.

rigged Pudge and made her ready for sea, and she floated out of the dry dock on Sunday afternoon 10th May straight into operation for her first charter.

Work was able to resume in October 2000 when I took Pudge to Cardnell's Yard at Maylandsea just down the river from Maldon and 15 minutes by car. Rick Cardy who had lead the shipwrights at Maldon was now working independently and agreed to take on replacement of the starboard bow above the waterline assisted by Kevin Finch. Tim Jepson had volunteered to take care of Centaur back at Maldon and I continued to manage the Pudge project. Kevin Burtonshaw, who as most of you know is one of our senior mates and has been working with us for over 20 years, agreed to supervise work on Pudge at weekends which, although I still attended, relieved me of a lot of the pressure.

Our plan was to do the starboard side in 2000 and then complete the job in 2001. We decided the most economical way was to buy enough timber for both bows at the same time so I bought 22 butts (trunks) of green oak cut into 6 inch planks at a cost of £8000 to make the frames. I also bought an iroko log 41 feet long x 43inch diameter at a cost of £6,300, sawn into 1½, 2 and 3 inch planks.

Work started with the removal of the covering board, a 12 x 3 inch thick plank that is the outer board of the deck. The rails and rigging chock are fixed down through the covering board so they had to be removed too. The latter was saved but the rails were too rotten to keep. While the shipwrights were fashioning frames we cut out the old planking to a staggered pattern below the rigging chock. It was then that we discovered the frames under the rigging chock where the main shroud chain plates are fitted were rotten too. This meant that we would have to renew the barge's planking a further 15 feet further aft than planned which would be beyond the maximum length of our new planks.

As a way of avoiding this Rick suggested removing a section the inner lining and sister chine, which we could put back later, so that the frames could be replaced from inside instead. Unfortunately this meant we had to

Re-framing in progress 2001. Photograph Pat and Peter Boss.

take out the starboard water tank and its supports, the toilet and washbasin, all the surrounding bulkheads and two big iron hanging knees that support the deck but we could do all that while the shipwrights got on with the framing.

The following week I was pleased to see the Iroko log arrive but soon changed my mind on inspection. It had been very badly sawn and the planks varied in thickness so much it was unusable, so I sent it back. A replacement was eventually sourced in Germany but the delay put us behind schedule.

The next job was planking which moves much faster than framing. The outside of the hull is built of two layers of 1½ inch thick planks with caulking between. This thickness does not require steaming to bend it round the bow but the wale does. (a 3inch thick plank 15 inches wide which forms the top of the hull). The 41 feet long plank had to be steamed for about 3 hours to soften the resin allowing it to bend. Instead of a steam box, the traditional method, they used the "boil in the bag technique". This is better for long heavy planks as they can be kept steaming in the bag with the weight hanging on a crane while they are bent and cramped in place allowing much more working time before the resin cools. The same principle was used in fitting the rail. By now it was the start of the season and we were not still finished so Centaur did the first charter while we put back Pudge's interior. While all the bulkheads were out we took the opportunity to build the second toilet compartment, a job we had been planning for some time

The following winter saw Pudge return to Maylandsea so that Rick's team could work on the port bow. The procedure was much the same. Replace the frames with new green oak, plank up in iroko, fit new covering boards and rails. This entailed of course the removal and refitting of such things as the forehorse, leeboards, all the cleats and a lot more of the interior fittings too.

When the job was almost at an end we researched the history to find the design of the bow badges as originally fitted. For many years Pudge had carried bow badges and scrolled name badges to a design by the late Joe Dunnett who replaced the bow rails at

Planking up the starboard bow 2001. Photographs Pat and Peter Boss.

Above: new frames on the starboard side. Below the new rail is fitted on the port bow.

Pin Mill in the 80's. The new badges are based on a drawing by barge skipper and historian Fred Cooper drawn in the 1940's. They are much larger and more ornate and have hawse holes through them. Terry O'-Sullivan produced full size drawings from a 4 inch drawing in a 1966 copy of Sea Breezes magazine!

I cut and shaped the boards in 3" iroko and took them to Mike Seymore who had carved Centaur's new bow badges some years ago. Mike produced the superbly carved badges and Rick fitted them at Maylandsea. I had to drill out the hawse holes and subcontracted the work of making up the metal hawse pipes. The final phase of the job was the replacement of the galley and Pudge returned to Maldon for the 2002 season looking like a new barge from for'ard!

Winter 2002 saw Pudge back at Maldon. With the starboard deck already renewed Kevin Burtonshaw took a good look at the port side deck which we knew to be soft in places and leaking, and a decision was made to replace all the planking from for'ard back to around the mainhorse. We erected a tent over the barge to protect her from the elements and removed the old planking. This revealed a worse state than had been expected as several carlings (half beams) which appeared sound from below had actually rotted from their top surfaces so would have to be renewed as well. This caused our first delay.

The timber for the deck was opepe purchased locally but unfortunately only available in 16 foot lengths which necessitated cutting extra scarf joints when gluing them together to make full length planks to fill a now 75 feet x 5 feet gap down the port side of the barge. Before scarfing together the planks all had to be planed to the same width and a caulking seam cut in each one. This part of the job is very time consuming and we were getting further behind until Phil Chatfield arranged for the remaining timber to be collected by one of his contacts, taken away, thicknessed and delivered back to Maldon. Member James Byam Shaw also stepped in by machining the remaining scarfs at his Heybridge workshop and we were able to progress to gluing the planks. Unfortunately the high moisture content of the wood, the damp weather and cold tem-

The new bow badges are clear in the picture as is the shape of the hull. Photo Pat and Peter Boss.

Above: new deck planking laid. Left: one of the new deck carlings in propped in place for fastening. Below Phil Chatfield works on the scarf joints while Pudge lies under the tent in the background.
Photographs by Martin Phillips.

perature conspired to lead to failure of the first ten joints. We had to abandon using epoxy resin and use a moisture curing adhesive, but cleaning off all the failed joints and restarting gluing put the job well behind again.

Only by a superb effort from everyone involved working every weekend throughout February to the end of April, a small crew working mid weekdays and Kevin taking over in the evening was the deck finally laid and fastened and the 600 feet of caulking and paying completed just in time.

This is the story of the work so far. Over the past 5 years we have made a significant impression on Pudge's restoration needs but it has cost just under £130,000 and we are still only about a third of the way there and a great deal more money is needed

Pudge's stern is beginning to droop. This is not unusual in old wooden barges after they have been operating for some years carrying 12 people instead of being deep loaded with 150 or so tons of cargo. When unladen the stern sits high out of the water supported only by the buoyant box like centre trying unsuccessfully to hold up several tons of rudder, stern post, steering gear and transom. The stern will have to be jacked up to its original position and completely rebuilt. There are more rotten frames amidships and in the after runs, and rotten spots in the chine keelson (see diagram 4). Her sagging hatch coamings, already mentioned, will have to be renewed along with the deck king planks that they sit on. This will most probably mean replacing all the hatches.

This could be done all in one go over a period of two to three years but it is very unlikely we would get a grant for it all. It would have to be done in five stages, side 1, side 2, stern, chines and chine keelsons, deck and hatches, and usingthe summers between to earn at least part of the money we will need for the next stage. Based on experience of previous work I estimate we will need £270,000 to £300,000 providing we can start within the next two years and work each consecutive winter until completion. And of course, providing we can operate the project the same way as in the past. A fixed price contract where we could not be involved in the work would be much more expensive, and there is no guarantee that I will be able to manage future projects. Finding someone else with the knowledge and time could be difficult, so we might find ourselves having to go down the fixed price road and looking for a lot more money.

Peter Boss

Peter Boss joined the TBSC as a mate in 1973 after sailing in many of the barges in the fleet. He became a skipper in 1975, was Rear Commodore from 1981 until 2003, when the titles were changed and he became Sailing and Barge Manager for the Trust. He has taken particular responsibility for the restoration projects on Centaur (1977 to 1995) and on Pudge since 1997.

Below: Pudge 2003. Picture Martin Phillips.