



Deutsches Schifffahrtsmuseum

The river barge **KARL VON BREMEN** of 808 AD



While excavating the building site for a new hotel near the river Weser in Bremen, the construction workers exposed a wooden boat, 10 m below street level, on March 29th, 1989. One end of the boat disappeared in the concrete wall of the building pit.

The boat had no iron nails or rivets, only wooden dowels held the timbers together. The outer planks of the flat bottom were L-shaped in cross-section: This sort of planks was used centuries ago to connect the bottom of boats with its sides. A colleague from the State Archaeological Department phoned us, and together we could salvage 12 m of the boat; presumably 5 to 8 m still lie outside the building site beneath the street.

The [dendrochronological dating](#) later showed that the boat was built about the year 808 AD, in the reign of emperor Charlemagne. Thus we named the boat **Karl**.

The river barge **Karl** is a very important find: From the Carolingian period only three other plank-built boats are known throughout Europe.



Now we had a boat, but no money followed. Our normal museums budget would not allow for the **conservation** of **Karl**.

We put him in a tent, installed a sprinkling system, and sprayed him with water day and night. We would have preferred to sink him in the museums dock, but as we had to raise money for his conservation we had to be able to show him.

A frustrating year went by. From more than one hundred companies, private persons, and the foundation Wohnliche Stadt we collected 90.000 Euros. In an extensive search we found a place in a hall under a bridge and had a conservation tank built there. The money did not cover all necessary installations, but **Karl** suffered in his tent: The summer was long and hot, and we had to submerge the ship in conservation solution lest it would break to pieces.



We treated **Karl** with the **two-step PEG-impregnation** which we had developed to stabilise the Bremen Cog. The impregnation took eight years.



We had to build the ship anew. All members were loose: Frames broken, wooden dowels sheared off partly already in the river bed, partly during the transport after the salvage.

We placed the three bottom planks on a strong plywood base plate so that they would not sag with time. The base plate was adjusted to the curve of the outer bottom planks. The stabilisation of the timbers had not turned out as good as hoped for – due to insufficient funding of the project which had compelled us to buy too cheap a heating system. Planks which had warped during and after impregnation were heated and pressed back into their original shape.

We erected provisional frames to build up the side planks. The port side of the ship is mostly preserved, from the starboard side great parts are missing. Each side is built from three wide clinker-set planks. The width of the ship will have been 220 to 240 cm, the height of the sides amid ship about 75 cm.



Eight men hold the second plank against the first one so that the dowel holes in the overlap match. The dowel holes also helped us to build up the fragmentary starboard side. Its planks had fallen apart already before the ship was excavated.



Amidship the planks are about 30 cm wide and 5 cm thick; towards the bow of the ship they taper off. The overlaps are very wide, about 10 cm, and they were caulked with moss.



We put new dowels into the old holes. It seems that 1200 years ago shipwrights had just been working on the fastening of the frames to the planking when **Karl** sank in the river, maybe in a flood: Many of the dowels protruded 1-2 cm from the underside of the ship; they were not yet cut flush with the hull.



We found other indications that **Karl** had undergone some repair or reconstruction: Dowel holes have been plugged with moss, some are not aligned, others have no correspondence in the overlapping timber. We do not know how **Karl** was propelled. Maybe he was punted along the shallow waters of the slow running river.



Exact wooden frame templates were fitted to the places of the original half-frames, and then executed in 10 mm steel. To the steel frames are welded flange plates over the original dowel holes.



Steel plates are fixed under the plywood base plate, and against them the steel frames are screwed. Pieces of steel tube in the original dowel holes keep them at distance, so that no pressure is exerted on to the old wood when the screws are tightened.



The side planks are fastened to the steel frames with nuts that resemble inverted top hats: The nut is in the top, the rim holds the plank, and into the hollow we put short wooden dowels to resemble the original dowels. Again, we use the original dowel holes. We placed the original frames alongside the steel ones.



The plywood base plate rests on two steel stringers bent to follow the rising curve of the boats bottom. A steel plate supports the bow-plate of the boat which holds together the ends of the bottom and side planks. Where the garboard is missing we have outlined its upper edge with a steel profile to give an impression of the volume of the big boat.





Karl was empty when he was found, and we do not know what cargo his skipper used to bring to or from Bremen. But together with a historian from the Bremen State Archive we have discussed which goods it could have been.

About 800 AD Bremen was an expanding town with a bishop's court and administration. Noblemen, soldiers, and craftsmen lived here with their families and households. These people needed food. Staple food was grain – barley and rye for bread and porridge, and for brewing beer. Whoever could afford it bought lard and butter, meat and sausage, salt and honey. The burghers also wanted to live in good houses, and the bishop built his cathedral. Bricks and sandstone for foundations, lime for mortar, and hundred thousands of shingles had to be brought on the river. Building timber and fire-wood probably came in rafts down the Weser from forests in the south. Other imports were swords, knives, axes, iron in bars, millstones, fine cloth and drinking glasses, wine, and a very expensive commodity – slaves.



Photos: Per Hoffmann and Gabriele Hoffmann
View of Bremen town hall and cathedral: © bremen online
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[To the Medieval Fleet](#)