THE REMAINS OF A SHIP OF THE ROMAN PERIOD DISCOVERED AT BELVEDERE ROAD, LAMBETH.

Shown and described there at a meeting of the Society, on July 8, 1911,

BY

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THESE remains were discovered in February, 1910, during the preliminary excavations for the new County Hall now in course of erection here for the London County Council. They laid 21 feet 6 inches below the level of Belvedere Road, and 19 feet 6 inches below Thames high-water level; about 400 feet north of Westminster Bridge Road and 250 feet east of the new Embankment wall by which we now stand. They rested upon a layer of sand and gravel, in what was in Roman times undoubtedly the bed of the River Thames: then apparently a clear stream, as the sand in and about the vessel was clean. The bow pointed toward the shore, and the position of the ship was N.E. to S.W. Above came about 7 feet of mud deposited by the river, and then about 14 feet of made ground, on which a building (Messrs. Crosse and Blackwell's) had been erected. (These proportions, however, were inverted at other points close by, where the mud measured 14 feet and the made ground 7 feet.)

The uncovering could not be carried out until the summer. The relic was found to be considerably broken and damaged, probably by the deposition of the mud. A large hole near the bows was possibly caused by the breaking away of the mast, as a portion of that

—2 feet 5 inches in length and 10 inches in diameter—was found near it. The timber was very soft and sodden, and on drying a fragment it was found that, while the wood toughened, it suffered much from shrinkage and cracking, and one piece, in fact, lost two-thirds of both weight and size in two months. Experiments were, therefore, instituted to find how best to preserve the material and to prevent or minimise this shrinkage; and coatings of glycerine proved of the best effect, although it could not do more than lessen or control the shrinkage and distortion. Accordingly, thirteen applications of glycerine were made, the last three containing mercuric chloride as a preservative and a fungi-preventive; and 5 cwt. of glycerine was absorbed.

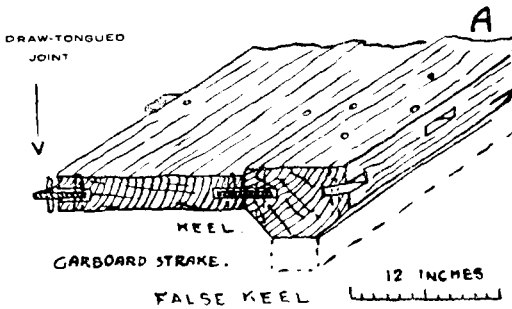
In October, 1910, the Council decided to remove the ship, and it was installed in this temporary building. The removal was a difficult and slow process. The vessel had to be lifted out of the concrete building-foundations which were then being constructed around it, and it could only be raised as a whole. A strong cradle was, therefore, built under the largest portion. Wood runners of 14 inches by 6 inches and 40 feet long were first sunk on either side to about 2 feet below the lowest part of the vessel. On these runners cross bearers were placed by removing the sand below the vessel at intervals until the whole had been placed in position. Packing pieces, cut to shape, were inserted between the bearers, so that the boarding of the vessel should rest upon them. The whole framing was bolted together, and felt was inserted between the bearers and runners, to reduce vibration on removal. The weight of the relic and cradle was cal-

culated at ten tons. Lifting-jacks were used to raise it out of the excavation to the level of the raft, which was then 6 feet above where the relic lay. It was then conveyed here on rollers.

The vessel is of oak, and its construction is what is technically called "carvel," i.e., the planks butt one against the other, as distinguished from "clinker" building in which they overlap. The measurements are approximately 38 feet in length, and 18 feet in width, but as the stern and a considerable length at the stern end are missing, it is difficult to state its original size. As far as can be judged, however, it would appear to have been about 60 feet in length, with a beam of about 16 feet.

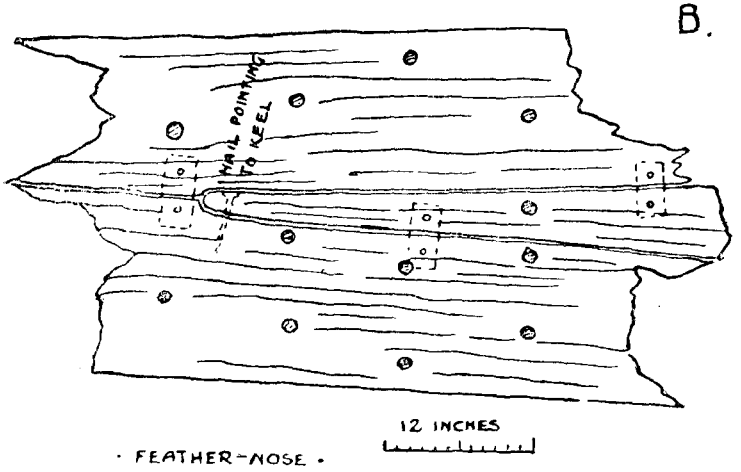
The keel is straight and measures 8½ inches in width and 6½ inches in thickness, chamfered on both lower edges to 3 inches on the flat. Along the centre of the upper face are numerous 5/8th-inch trenails—wooden pins used instead of nails. These appear for a distance of about 12 feet from the bows, as now existing, but none were found beyond this. It is considered by Sir Wm. White, K.C.B., that the purpose of these oak trenails was to secure to the underside of the keel a piece of timber as a false keel (A), so that if the vessel grounded at any time, the force of the impact would break this timber away and so free the vessel. Draw-tongued joints (A) are used to secure the garboard strake (the first range of planks laid on a ship's bottom next the keel) to the keel at intervals of about 6 inches, the oak tongues being 5 inches by 2½ inches by ¼ inch secured with ⅝th inch pins. This method is also used for fixing the strakes to one another. The joints and construction throughout in-

dicate the vessel as a fine piece of carpentry. Near the bows the upper face of the keel is ¾ inch above the general surface, but at a distance of about 7 feet it



becomes flush. The garboard strakes are 3 inches in thickness and from 13 to 15 inches in width.

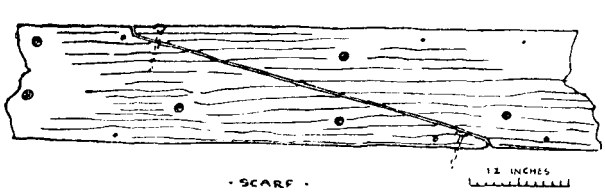
The remainder of the strakes average 10½ to 15 inches in width, and in thickness those near the keel



are 3 inches, thinning down to 2 inches at the sides. They are long planks commencing with a feather

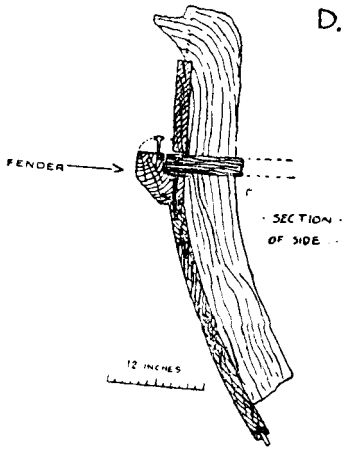
heading (B), widening to the centre and scarfed in places (C).

Very little iron was used in the construction. One instance noted is where each strake starts at its feather



head a large clout (or scupper) nail is driven into the board already fixed (B). The nail was probably used for extra strength, as otherwise this portion of the joint would be weak.

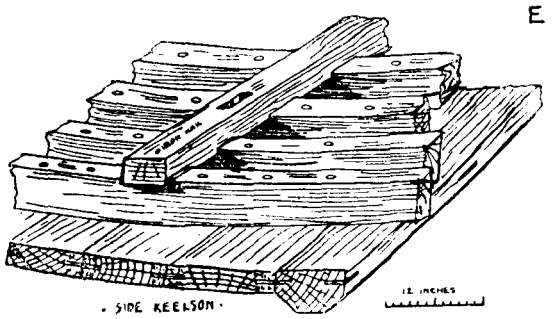
The portion remaining of the starboard side is much



damaged, and has been severed from the main structure. In this section is a fender (or timber buffer) 6 inches square for protecting and stiffening the side of

the vessel (D), and also for receiving the cross bearers which may have carried the deck. At centres of about 3 feet notchings 6½ to 7½ inches long, 3½ inches deep and 1½ inches wide were found on its top surface. The ends of two cross bearers were discovered in the fender, each being fixed by two iron nails.

A side keelson (E) is housed on to the ribs on the starboard side 2 feet to 3 feet from the keel, but the corresponding one on the port side is missing. It measures 5½ inches in width by 3½ inches in thickness.



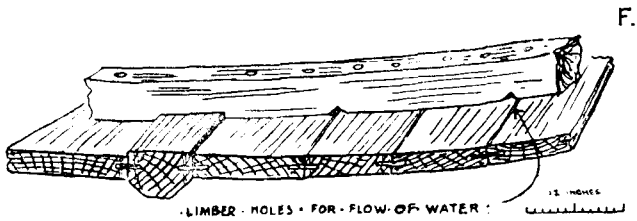
Iron nails were used for fixing it in position, and at intervals of about 3 feet mortices are cut, probably to hold standards to support the cross bearers.

Most of the ribs near the bows are lost, but the broken trenails remain, showing their position. These give the distance of about 1 foot 9 inches from centre to centre of rib. This dimension decreases at a distance of 6 feet, where they average 10 inch centres, which dimension generally holds, except that at a distance of about 22 feet, where there is a space of 1 foot 5 inches on the port side, no trenails in the strakes were found to indicate that a rib had been fixed here.

The ribs are about 4½ inches broad, 6½ inches deep, and are cut to shape, every alternate rib only being carried up the sides. Knee timber (cut to the natural curve of the grain) has been used in the construction, as one length of rib was found following the grain of the wood (D); it evidently belonged to the side of the vessel; its upper end curves round and continues with a tenon (i.e., the projection at the end of a piece of wood inserted into a socket or mortice of another to hold the two together) which was probably fixed into the waling piece, or plank along the outer timbers, above the deck level.

The ribs and strakes are fastened together by oak trenails 1¼ inch diameter, averaging about 6 inches centre to centre, but no regular pitch was observed. Where the keel is raised above the garboard strakes, the ribs are slightly notched, but in no case are the ribs fixed to the keel.

A length of curved rib was discovered in the bottom of the vessel. It thins off to a feather point at one end; one face is straight for a length of 1 foot 8 inches. It is either a portion of a lap joint or the end of a rib which feathered off against an upright bulwark.

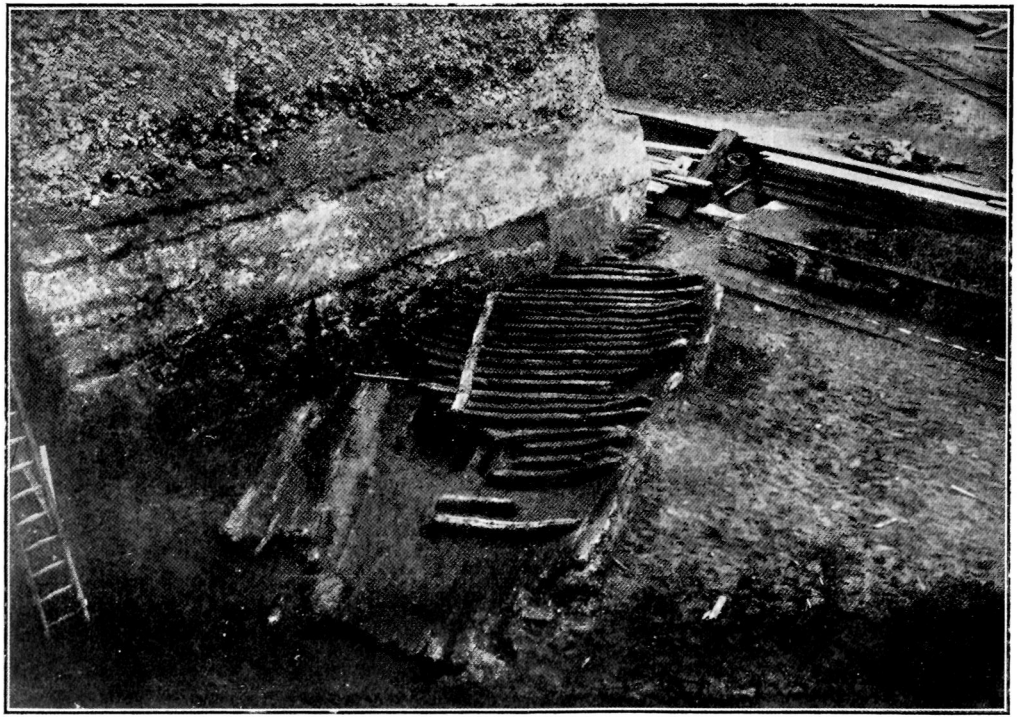


Two limber holes (F) are cut to the underside of the ribs on either side of the keel; these holes permitted the bilge water to flow, probably to the position near

the centre of the vessel, where the space between the ribs is widest, for here the water would be more easily accessible for throwing overboard.

Evidence of damage and repair is apparent. Three of the ribs have their centre portions renewed. The boards in many places show signs of fracture, and above these are short lengths of thin oak boards tightly wedged between the ribs, and pressed upon a thin layer of puddled clay laid on the fractured boards. In one case a sherd of Roman black pottery was tightly wedged and embedded in stiff clay beneath a rib. On examination it was found to be filling a hole at the end of a feather head of one of the lower strakes, proving that, in spite of every precaution, these joints were a source of weakness. Several large iron nails were found driven through the strakes into the ribs, most probably for the purpose of superseding broken tre-nails.

[NOTE.—The vessel and the objects found with it were removed by the L.C.C. in August, 1911—a few weeks after the Society's inspection—to the new London Museum at Kensington Palace, and were there deposited as a permanent loan. The facts given above have been included in an excellent pamphlet issued by the Council, and the illustrations are reproduced from that pamphlet. In an interesting and valuable note therein, Sir Laurence Gomme, F.S.A. (Clerk to the Council), remarks that "It is quite possible that the boat may have been simply a barge used in London commerce, and of a kind in use from very early times; or it may have been used in the ferry service which was certainly established near this spot. The date of the boat, in fact, whatever may have been the nature of the



REMAINS OF ROMAN SHIP DURING THE EXCAVATIONS.

REMAINS OF ROMAN SHIP AS EXHIBITED AT THE LONDON MUSEUM.

vessel, may be taken as fairly established. The articles mentioned by the architect as having been found in the boat, particularly the coins, point quite distinctly to the Roman period. The latest of the coins is one of Allectus (293-296 A.D.), and it may be assumed with a fair amount of probability that the boat dates from about that time. It should be noted that the boat itself is of a character known to have been used by the Romans. They were not a shipbuilding people, but they employed some of the Baltic and North Sea tribes, particularly the Veneti, to construct vessels for their use, and this vessel, with its original wooden pins, and later repairs in iron, is exactly of the type to have been produced from these sources." Sir Laurence Gomme goes on to suggest that it may have been a vessel of Allectus destroyed in conflict by the forces of Constantius Chlorus when he recovered London and Britain for the Emperor Maximian.

It may be noted that the discovery was primarily due to a member of this Society, Mr. F. L. Dove, who is a member of the Establishment Committee of the L.C.C. To again quote Sir Laurence Gomme: "While inspecting . . . . the works for the concrete raft which forms the foundation of the new building, he noticed a dark curved line in the face of the excavation immediately above the virgin soil and some distance beneath the silt and the Thames mud. The workmen engaged suggested that it was a sunken barge of comparatively recent date. Mr. Dove, however, at once realised from its position that it must be of considerable antiquity, and he accordingly requested the Council's architect, Mr. W. E. Riley, to have the soil carefully removed from above." EDITOR.]