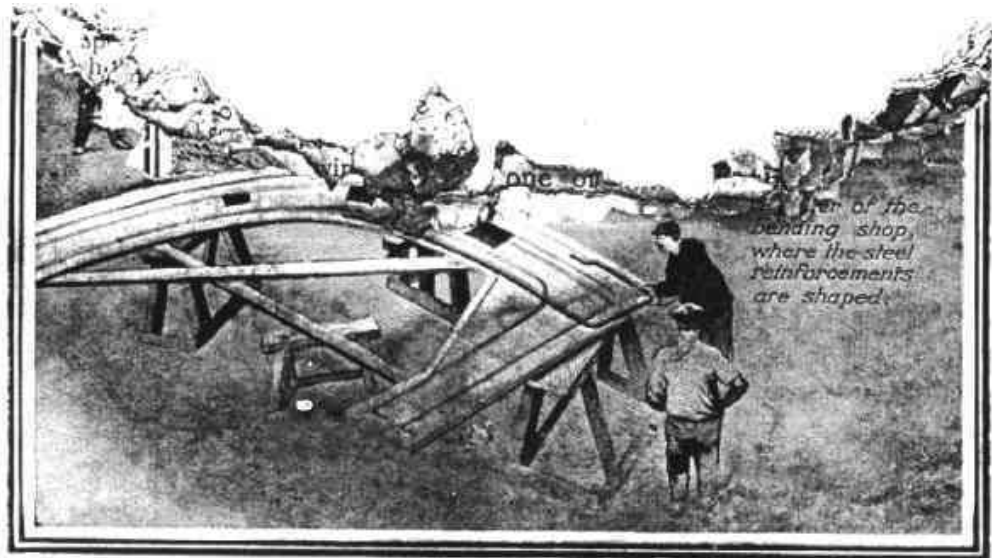




How to Construct a 900-ton vessel in Concrete

[Index](#)

With many thanks to Bev Edmonds for sending me that source material from "The Sphere, London, Vol. LXXIV, No. 974, dated some time after 12-14 Sep., 1918 (the part of the newspaper where the date appears has been consumed, literally - see the state of the first picture. Nevertheless I hope some people will find the article of interest. Web-space precludes larger images, however, I would be happy to send large images on request - but please quote URL.



(1) Bending the Steel Reinforcements

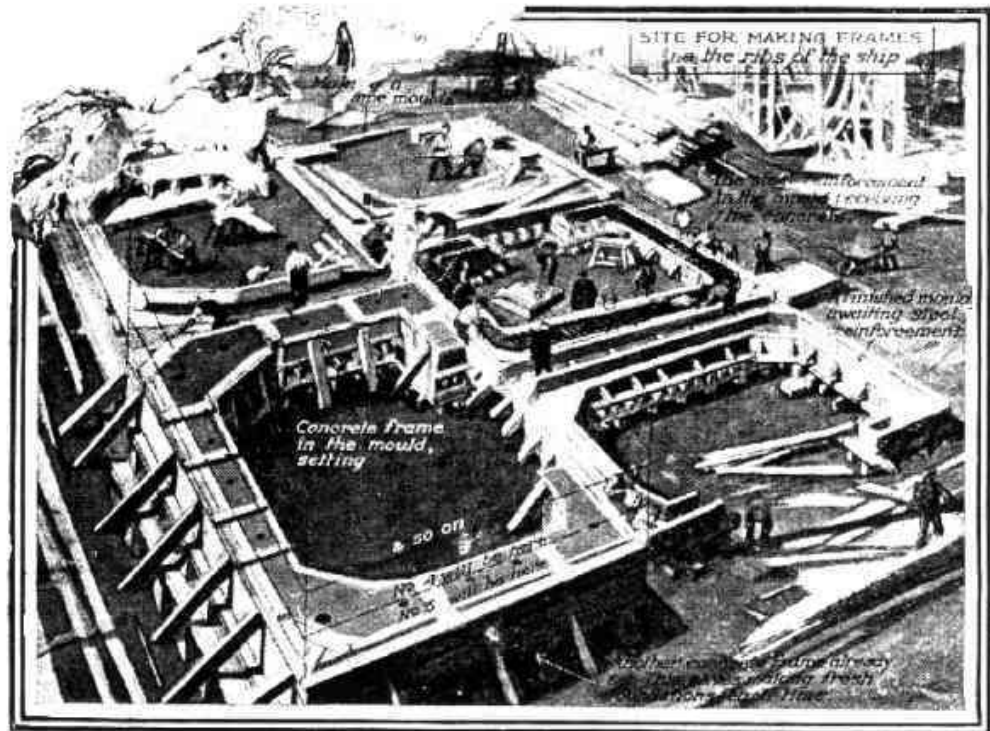
A concrete ship is not made of a simple mass of concrete poured straight away into a mould and then left to settle. It is built up on a skeleton of steel rods.

The enormous demand for certain materials, owing to their use for munitions and other war requirements, has brought about, and is continually bringing about, revaluations in the industrial world which a few years ago would not have been thought of.

The shipbuilding industry requires the use of thousands of tons of steel for new ships, and to economise in the use of this material the concrete experts conceived the idea of designing concrete ships, made of concrete reinforced with light steel rods, thereby economising the use of steel for ships to such an extent that from three to five reinforced concrete vessels will only require the same, amount of steel as one steel vessel of equal size.

The concrete men are enthusiasts, and will tell you that this development is not merely a war measure but a permanent business proposition to oust steel and wood.

How a 900-ton Vessel is Constructed.

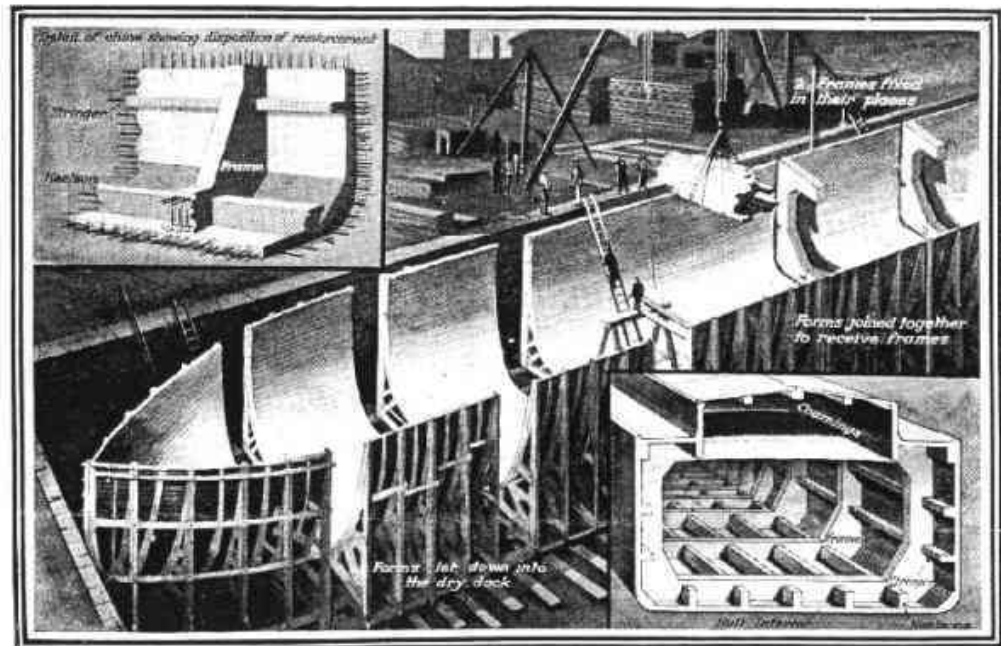


(2) Making the Concrete Frames for a 900-ton Ship

Timber frameworks are set up which act as moulds, into which concrete is poured in order to make the "frames" for the ships.

Reinforced concrete vessels have been built before, but only in an experimental way and for river and canal traffic, but the vessels now being constructed vary from small river barges to 7,000 ton steamers, and the methods of their construction seem to vary as much as their sizes.

Some of the smaller craft are both built and launched upside down, the concrete being more easily applied to the hull in that position. This is, however, not a universal method, nor a usual one with vessels of a large size.



(3) The Curved Wooden Forms in the Dry Dock

The wooden mould on which the concrete ship is to be built up is not made in one piece, but in a number, as shown here. The bow forms are shown separated. Further amidships the forms are seen close together, with the frames in position. A section of the hull is also shown, with hatchway above.

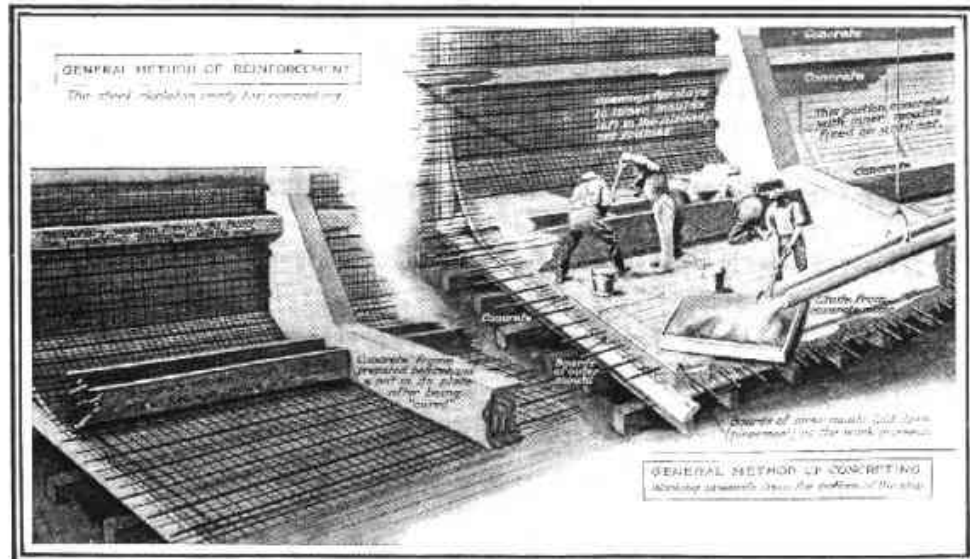
Our illustrations are from sketches made during a visit to a yard " somewhere in Britain," belonging to one of the leading firms in England, Messrs. J. and W. Stewart, of 42, Albemarle Street, [Brentford, West London †]. In this case the vessel is of 900 tons displacement, built right way up in dry dock, and floated out when completed.

The " forms "-that is, the different portions of the moulds for the outside-are placed together end to end in the dock, after which the "frames," or reinforced concrete ribs of the ship, which have been already made and are complete and dry, are let down into the mould and adjusted in their appointed places, with a space of 4 in. left clear all round between them and the mould. This 4 in. represents the side of the ship, and in this space are then placed the steel reinforcements, care being taken that no part of the reinforcement comes nearer than a certain distance to the surface of the mould ; that is so that all the steel rods, shall be covered when the concrete is applied.



(5) The Finished 900-ton Vessel in Dry Dock

The concrete is then placed over the reinforcement and through it, in portions from the bottom of the ship upward, running outside the frames and being locked to them and their reinforcement as the work proceeds—the inside retaining moulds being applied gradually to the different portions as completed, and in the manner shown in the drawings.



(4) Ramming the Concrete into the Steel Skeleton

The concrete is not poured on in a watery condition. It is very stiff, and only just moves. It is rammed into and around the steel framework by the workmen, who use spades as shown above.

These diagrams illustrate the various stages in the making of a concrete ship, from the shaping of the steel reinforcements which form the skeleton of the vessel to the final launching of the finished hull. Ships constructed of concrete have proved extremely satisfactory, and it is reasonably safe to assume that they will be largely used in the future.

The wooden mould on which the concrete ship is to be built up is not made in one piece, but

in a number, as shown here. The bow forms are shown separated. Further amidships the forms are seen close together, with the frames in position. A section of the hull is also shown, with hatchway above

† Thanks to Ian Buxton

[^ back to top ^](#)